

Bob Cooper's

MAY 15 2006

SatFACTS

MONTHLY



Reporting on "The World" of satellite television in the Pacific and Asia

IN THIS ISSUE

**Open Revolt:
Optus
Security Audit**

**Atlanta Expo
2006: Wow
and double wow!**

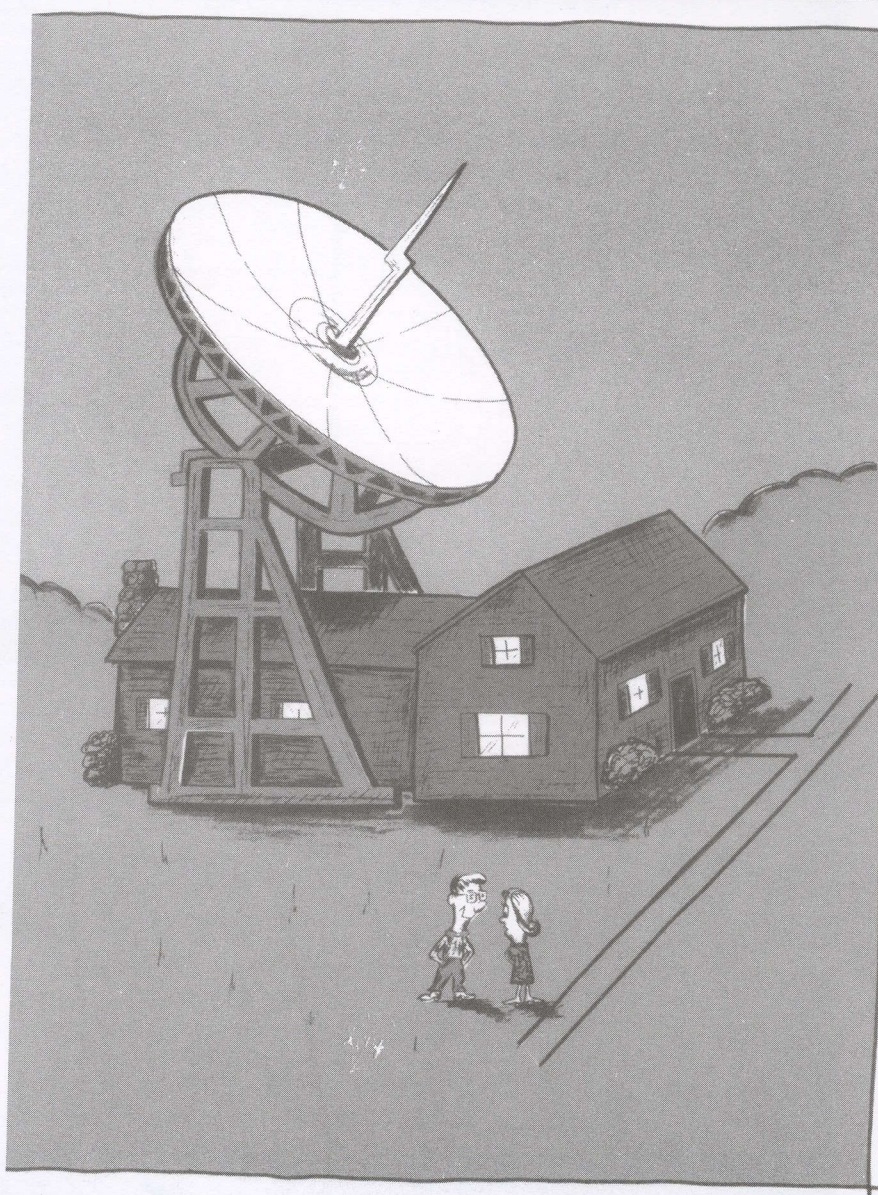
**Directional Taps:
When to use
and how**

- ✓ Latest Programmer News
- ✓ Latest Hardware News
- ✓ NZ FTA Coming!
- ✓ Observer Reports

Vol. 12 ♦ No. 141

Price Per Copy:

NZ\$10/A\$11/US\$/Euro8



*"Bob, I Still Think It Would Have Been
Cheaper To Get The Cable."*

Hualin Pty Ltd

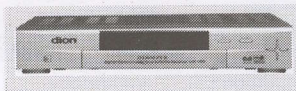
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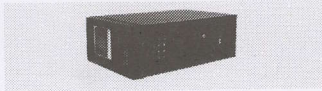
Specials this month

DT800PVR - Digital Receiver



- 40Gb HDD = 40hr Record time
- 2x CI CAM Slots
- DiSEqC 1.2
- **Fibre Optic Output Capability**
- Price: \$390 AUD + GST

Satlook - Signal Meter



- Digital, Analogue and combined versions available
- A must for the professional
- Simple menus and functions
- Price: Phone up for Quote

DreamMAX - DT470



- Irdeto embedded
- 4900 Channel Memory
- DiSEqC 1.2
- User Friendly
- Price: \$200 AUD + GST

Everything? Yeah we got

LNBF

- Zinwell C Band
- Zinwell KU Band
- MTI C Band, Superhigh gain
- One Cable Solution - C-Band
- Dual Output KU 11300 MHz

Positioners

- Superjack EZ-2000
- Superjack DP-6600, DiSEqC 1.0/1.2
- Technosat DP-200, DiSEqC 1.2
- Manual Actuator Driver - EW101
- SAP 2000: 99 Memory positioner

Actuators

- Superjack HARL-3618, 18" Actuator
- Superjack HARL-3624, 24" Actuator
- Superjack DG-120, H/H Mount

Receivers

- SuperNET CA, Irdeto Embedded
- Success, Free-to-Air
- Dion DT-370, Free-to-Air Receiver
- Dion 2x CI, Hardware AllCAMed
- ChangHong, Mediaguard embedded
- SuperNET Terrestrial, DVB-T
- Phoenix High Definition STB

Dish and mounts

- 1.2, 1.8m Solid Prime focus
- 45, 60, 65, 85cm KU dish Offset
- 2.13m, 2.27m, 2.4m, 3.0m, 3.07m, 3.7m, Mesh Dish, Light and Heavy Duty PSI and JOYSAT Available
- C-Band Wall brackets
- C-Band Concrete mounts and stands
- KU Gutter mounts
- KU Wall mounts
- KU Float mounts
- KU Tinroof mount

Dion 818 CI - Digital Satellite Receiver



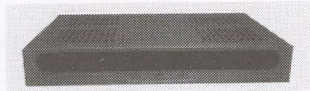
- Slim Size and User Friendly OSD
- 2x CI (Common Interface) slots
- Hardware AllCAMed

SuperJack H-H Actuator, DiSEqC embedded



- All it takes is one coaxial cable....
- NO MOTOR CABLE REQUIRED**
- DiSEqC Positioner EMBEDDED!

Supernet - Terrestrial DVB-T



- Digital Terrestrial Receiver
- Slim Design
- High Quality Picture
- Easy to install and use

Dion316 - Digital Satellite Receiver



- FTA + Software Patched
- 4000 Channel Memory
- DiSEqC 1.0/1.2 Compatible
- Price: \$170AUD + GST

Switches and Splitters

- 2 and 4 way DiSEqC switches
- 0/22kHz switches
- 2 and 4 way cable splitters
- V/H Multiswitch
- 0/12V Switch

Cable - 15m, 25m, 305m packs

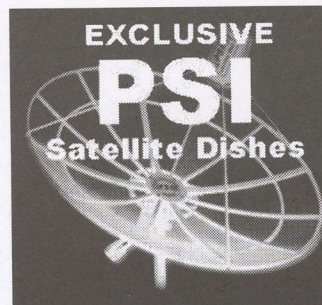
- RG6-U Dual Shield Coaxial Cable
- RG6-U Quad Shield Coaxial Cable
- Cat5 Actuator Cable

Plugs

- F Connectors, Screw or Clamp types
- Cable joiners
- AV Splitters
- Cable Strippers
- Cable clampers
- Various other joiners and accessories e.g. RCA/SCART cables and converters

Misc

- 2.4GHz AV Sender
- Irdeto 2.06B CAMs, Viaccess CAMs
- Satlook Digital Signal Meter
- Satlook Analogue Signal Meter
- Satlook Digital + Analogue combo
- Satellite finders
- Angle level measure instrument
- High Quality Compasses



SatFACTS MONTHLY

ISSN 1174-0779

is published 12 times each year (on or about the 15th of each month) by Far North Cablevision, Ltd.

This publication is dedicated to the premise that as we enter the 21st century, ancient 20th century notions concerning borders and boundaries no longer define a person's horizon. In the air, all around you, are microwave signals carrying messages of entertainment, information and education. These messages are available to anyone willing to install appropriate receiving equipment and, where applicable, pay a monthly or annual fee to receive the content of these messages in the privacy of their own home. Welcome to the 21st century - a world without borders, a world without boundaries.

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our 12th year!

COOP'S COMMENT

Walt Disney (RIP) would be pleased if he was alive and heard Anne Sweeney, Disney's Television Group President, deliver a keynote address at the National Cable & Telecommunications Association (NCTA) annual gathering during April. Sweeney reflected on how Disney - the corporation - has reassessed the rapidly changing world of telecommunications, identifying something they call 'the millennials', aged 8 to 27, as the focus for everything that is now happening to turn traditional television into a dinosaur.

Sweeney's research identifies 40% of the 8 to 27 group who leave school, or work, and go home at night to spend time with as many as eight different technologies (iPOD, Internet are two, for example) - and traditional television is not one of the technologies this age group uses. Sweeney also identified that an equal percentage, 40, of the so-called 'baby-boomer' group (aged 28 - 50), go home and watch traditional TV. What this tells Sweeney and Disney is that if you wish to 'reach' (with programming, advertising) the 40% (and growing annually) aged 8 to 27, traditional television (whether over the air, satellite, cable) is a poor choice.

That percentage, 40, peaks in the 16-25 sub-group, actually exceeding 50% in many US geographic regions. And in the lower baby-boomer spread (28-50) there is a high percentage who believe, whether true or not, that "Soon I won't need my cable TV -it will all be available on the web."

The time line in this quantum change is key here. Nobody did similar research five years ago so one can but estimate how rapidly the numbers are changing. In North America (Canada leads the US) 60% of all homes have broadband (high speed, video capable) Internet available, up from under 25% a scant 5 years back. But the real driver is not Internet as much as it is turning out to be 3G delivery of video to tiny 2(.4)" cell phone screens. TV via Internet, to a home or laptop computer, may be a worry to traditional cable TV firms (still struggling with their own transition from analogue to digital). But a growing worry, especially when trying to reach the 8-27 "millennials," is the rapid adaptation of TV viewing turning into a "mobile" rather than "fixed location" market. At the cable convention, a panel of ten Georgia Tech (University) students answered questions about how they, aged 18-22, used telecommunications technology. One of that group confessed he had never watched the popular ABC series "Lost" on a television set. But - he has watched every episode to date on his cell phone or his laptop.

The TV industry is faced with a monstrous challenge - if viewer habits change as it appears is happening, how do they adapt, and still reach eyeballs (which translates to advertising dollars)? Could it be as simple as plugging TV shows (with advertising included) into a web server allowing cell phones or PCs alike to connect? Sweeney believes a version of this is an interim answer - offer not only (almost) real time "Lost" to viewers (8 hours delayed), but also allow them to select previous episodes they may have missed as well, at will, when and where they wish.

Disney (presently) owns the American ABC network so it has a built-in system to test their theories. So you can now go to ABC.com and select from a menu current and past versions for a number of Disney owned top shows including, "Alias," "Commander in Chief," "Desperate Housewives" and "Lost." Right now you can do this - the full shows, with commercials (they have a clever way, they say, to force the commercials to appear in real time so you cannot 'TIVO' past them). In June, they up the ante with five Disney Channel Shows added to the selection.

One of the promising strong points still in cable's favour is a transition from 'view-it-live' to 'select previous episodes and watch when you wish.' ABC.com just yanked that rug out from the cable guys, at least in North America.

There is a strong technical glitch in all of this if you happen to live where the local telephone company or ISP charges you for download time or data flow. "Lost" and the rest are large bandwidth consumption machines. If your broadband has a 10Mb cap on it for a monthly billing cycle, you'll exceed that cap with only a few web delivered shows. Telecom NZ allows you to exceed the cap, and pay a fee, or optionally to have your download speed throttled back from 350+ to dial-up speeds in the 50 kb region. You won't like having an episode of "Lost" disappear into pixels because your monthly quota has been used up. Most advanced countries do not penalise broadband users in this manner and the only reason NZ does so is corporate greed which inept regulators allow them to get away with. Walt Disney would call it Mickey Mouse!



In Volume 12 ♦ Number 141

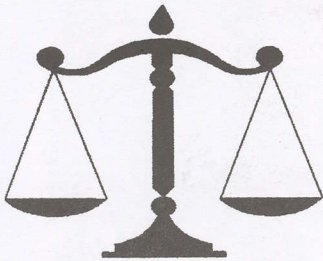
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TVNZ/CanWest FTA DVB-S -p.18; Directional taps: what and how to use -p. 19

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-On the cover-

A cartoon from the past.

PROGRAMMER
PROGRAMMING
PROMOTION

UPDATE

MAY 15, 2006

TelePhoSee growth

"Reference the video-phone device, TelePhoSee, SF#138; this whole technology is exploding. Check FTTH and the triple-play option from Connection Technology Systems (www.ctsystem.com) which was recently on show at CEBIT in Hanover (Germany)."

Fraser Hickox, Hong Kong
SatFACTS TelePhoSee number is
617001100014 while eccentric TV2Me
inventor Kenny Schaffer is
6170011100015. How often can you get a
direct 'video line' to someone as
(in)famous as Schaffer and actually tour
his downtown Manhattan apartment in the
process? As for us, we are here daily. No,
this 'opportunity' won't last forever -
unlisted numbers are next!

Group buy of 'Television's Pirates'

"The members of the world's
premiere 'club' of long-distance TV
and FM band reception enthusiasts
greatly appreciate the opportunity to
acquire first-edition copies of
Television's Pirates through your
generous discount offer. Enclosed our
club payment for our members taking
advantage of this!"

Mike Bugaj, Worldwide TV FM DX
Association, Somerville, Ct (USA)
Dealer/distributor quantity shipments in
multiples of ten (10) qualify for discounts
off of the retail US\$29.95 retail price; see
p's 31-32 here; email
skyking@clear.net.nz.

www.bobcooper.tv

"All 3 pdfs work fine here! First I
viewed them with Microsoft Internet
Explorer (Version 7 beta), saved them
and printed OK giving me a good set
of articles to read! I am really
intrigued by the attractive 'ghost
buster' catching microwave signals
that appears on the Classic Video
page. Thanks for the web site and it's
rich content. It is great that the book
(**Television's Pirates**) and this site
will ensure that the pioneering stories
will live on. The early days sound wild
- I wish I was there too."

Mark Fahey, NSW

In time we will reveal more about 'Marina'
the Ghost Buster on the web site. During
April it attracted more than 5,000 'hits'.

NZ FTA satellite content? One programmer source advises,
"We will be introducing new channels but no decisions have
been made as to content; we will not be regionalising the
existing services and C4 is already national." So goes a
statement unofficially obtained. Translation? While TVOne, 2
and 3 break into terrestrial networks to place 'regional'
commercials, the FTA satellite version will be 'national' in scope.

B1 to D1 countdown. Major NZ newspapers have finally
twigged to possibility Optus B1 satellite, home relay for Sky NZ
and many Australian services, may not last until D1 is launched
and commissioned. "*Is Sky satellite in trouble?*" appearing in
Wellington paper (The Dominion) May 1 focused on possible
shortage of hydrazine manoeuvring fuel remaining available
after March 30th incident (SF#140, p. 1, 4), which created total
loss of service for 14 hour period. Paper reported new D1 bird is
scheduled to be shipped from (Orbital) 'factory' to French
Guyana launch site May 20 but could not locate anyone able to
cite a scheduled launch date (nominally, retrofitting the satellite
to the launch rocket and system checkouts run to 6 weeks and
more). The most likely timing would see D1 launched late in July
at the earliest, extending on through September. And if B1 does
a complete failure before D1 is available? Optus won't
comment, Sky NZ says they have a 'Plan B' which possibly
involves shutting down all B3 traffic, moving B3 to B1's location
as a temporary fill-in; at best a week-long exercise that would
further reduce the propellant fuel remaining on B3 itself
(creating new, future shortages for that satellite as well).
Nervous times, indeed.

Canadian 'Baby Boomers', now 55+ in age, spend an
average of 15 minutes a day on romantic involvements and over
5 hours each day surfing Internet or watching television. A
survey of 2,500 found television watching, in a generation
brought up on the tube, is increasingly being replaced by
Internet; 2 of those 5 hours daily are spent with the PC, up from
1 hour two years ago.

Another reason to abandon traditional television? America's
ABC network has begun Internet streaming, 8 hours after they
first air, a number of hit TV shows including: Desperate
Housewives and Lost. The downloads are free (other than what
it costs the user in net fees), advertising is included but
revamped for Internet. The link is www.abc.com.

American based AOL is countering with free streaming of
'older TV shows' including Welcome Back Kotter, Maverick, Lois
& Clark and Wonder Woman (go to in2TV). Cartoon Network
(www.adultswim.com) is free-streaming full-length adult-targeted
cartoons, on demand. Others including America's CBS
(www.cbs.com) and Google (www.video.google.com),
CBS.Sportsline.com offer US\$1.99 events.

UNAOHM

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From the top line EP 3000 EVO to the economical handheld S22, C30 and T40, Unaohm's claim to fame is sound measurement principles. Now supported in the Pacific by Laceys.tv's Factory Trained Repair and Cal centre, there are good reasons to make your next meter an Unaohm!

Lord of the dish?

"I just finished reading Television's Pirates last night, and it only multiplies the respect that I have for you for the things you have done in the satellite industry. In recent years it seems that every few months I have to re-invent what I am doing or selling, because of some unexpected changes in the landscape of the industry. The book is much appreciated and will be re-read for quite some time into the future; your experiences are at least on the level of 'Lord Of The Rings' think it!"

Mike Kohl, Global Communications
It is a total coincidence that Mike's photo appears in this issue (p. 7) from our Atlanta Expo 2006 visit. But it is not a coincidence that Mike and Coop are spearheading a planned '20th C-Band Anniversary' subset for Expo 2007 in Atlanta (April 17-21, 2007). "Television's Pirates" is off to a rapid sell-out of the first edition which means collectors decades from now will be paying large dollars for copies, especially those autographed by the author (there could be a 'new word' in this: 'Authorgraphed'?).

Slower reader

"That was an awesome experience seeing you again in Atlanta after 22 years. I am up to page 50 of Television's Pirates and would have finished it already but have to work, eat, sleep and do other things. I do have VHS tapes buried in my storage of the early satellite shows including Shaun Kenny's infamous 'Yellow Rain' coverage of the M-A Com Videocipher descramblers. I will be counting the days until Atlanta Expo 2007 where we can all relive the glory days of home dishes!"

Paul Helfer, Helfer Satellite,
New York

Helfer, a great C-band story teller, managed to personally sell and install just over 1,000 8-12 foot dish systems in 5 years - not quite one-a-day but close enough. His mention of weekly TV show producer Shaun Kenny's 'Yellow Rain' segment is a real mind blower. Kenny was in the minority by opposing the M/A Com Videocipher because of what he perceived as its vulnerability to hacking. Each week he created new reports about this contentious issue by taking a M/A Com unit into a men's public rest room (loo) where as he recited the latest news he pissed on one of their units stuck inside the urinal; hence, 'Yellow Rain.' His reports were outrageous, especially when his bladder was empty and he grabbed innocents to keep up the stream until the news report was finished! Yes, this too is

HARDWARE EQUIPMENT PARTS

UPDATE

MAY 15, 2006

MHEG-5? TVNZ is seeking input from potential STB suppliers in New Zealand for the transition to DVB-S and they would prefer to have MHEG-5 format digital. Which is? Well, let's just summarise: It will be brand new in the Pacific. What does it do that MPEG-2 or MPEG-4 does not do? MHEG-5 was conceptualised more than ten years ago, and the primary advantage is that it locates areas in the transmitted image that have changed and corrects only that portion, thereby saving bandwidth. Another advantage is the ability to do teletext. Britain's FREEVIEW uses this technology. CA can be added (Conax, Viaccess, Mediaguard and Aladin) although as an FTA service, that is not initially planned.

Wi-Fi piggybacking. With the explosion in wireless connection Internet sites (even in select McDonalds Restaurants), it has become progressively easier for unauthorised people to tap into Internet without being an authorised Wi-Fi user for that site. Apparently the largest security breach has been occurring not at commercial sites (such as at restaurants) but rather with personal Wi-Fi (one household, one apartment) systems. The commercial sites are increasingly protected by log-in security procedures whereas the lower-cost "home systems" typically are not. Password and encryption systems for 'install it yourself' Wi-Fi packages are either ignored by or too complex for the average consumer. With a coverage range of up to 100 metres, a lot of mischief can be committed by someone in an adjacent home, apartment, or sitting in the street out front with a laptop. Telecom NZ recognises this possibility, and when downloading charges of \$650 appeared on a light Internet user's monthly statement, the Telecom help desk was quick to suggest someone had made clandestine use of the home's Wi-Fi system. This sort of problem occurs often enough that Telecom has a one-off (not to be repeated a second time) policy of discounting charges apparently not run up by their customer, with the warning, "You had better install passwords and encryption for your Wi-Fi system because we won't grant you this sort of reprieve the next time it happens."

Not for us - but maybe one day. DrDish is now daily in Europe, M-F 12-17:00 CET and Sat-Sun 17-22:00.

Toshiba's HD-DVD players have again been delayed. However, unless HD players are connected to TV set through HDMI (High-Definition Multimedia) cable, even HD discs will appear only as standard definition. Another consumer ouch to contend with.

TIVO scores agin EchoStar/DISH. A Texas jury has awarded US\$74 million to TiVO finding EchoStar and their DISH satellite service infringed on patented technology when introducing their own satellite-box recording system (SF#139, 140). TiVO may wait some time to collect as EchoStar will appeal the decision. TiVO has an agreement with DISH competitor DirecTV.

Phoenix Technology Group

Satellite Equipment & Accessories One Stop Supermarket



Phoenix 2.35m Motorized Extra Heavy Duty Mesh \$180 each
Buy 10 get one Free!



Folding Arm Dish best dish for caravan & camping
64cm \$25/each
78cm \$48/each
88cm \$55/each
North Elev Bracket \$5 each



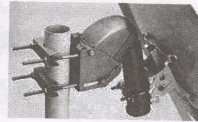
Phoenix 2800A \$110
The Best FTA Available
Quantity price available



Dreamax DT470 \$160/
each Irdeto Embedded
Satellite Receiver



Zinwell 15K LNB \$28/each
for box of 24



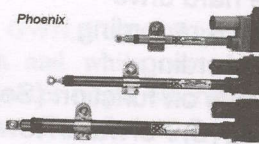
Motek SG2100 Motor \$105/each



SuperJack EZ2000 Positioner \$50/each



Motek V Box II DISEQC1.2 Positioner \$65/each



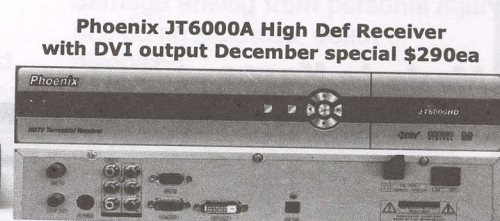
Phoenix Actuator from 12' standard duty to 36' heavy duty
From \$35/each to \$220/each



RG6 Cable Dual shield \$65/box
Quad shield \$75/box



Phoenix JT3300A Digital Terrestrial Receiver \$110-1 buy \$99-5 buy



Phoenix JT6000A High Def Receiver with DVI output December special \$290ea

Irdeto 2.06B CAM	\$110	PBI C+Ku band LNB	\$65
Viaccess CAM	\$110	Zinwell C band LNB	\$35
65cm Azure shine offset dish	\$28	Zinwell Ku band LNB	\$25
75cm Azure shine offset dish	\$40	MTI C band LNB	\$25
85cm Azure shine offset dish	\$45	MTI one cable solution LNB	\$45
One leg gutter mount	\$18	Satellite finder	\$25
Two leg gutter mount	\$22	RG6 stripper	\$20
Tin roof mount	\$22	RG6/RG11 crimper	\$30
Wall mount	\$15	Angle meter	\$35
SuperJack H-H motor	\$95	Compass High Quality	\$10
2.3m SD mesh dish	\$150	RG 6 Crimp Connector 100 pack	\$25
3m SD mesh dish	\$340	22K switch	\$10
3m HD mesh dish	\$380	Two way DISEQC switch	\$10
3" 2.5m galvanised pole	\$30	Four way DISEQC switch	\$12
3" 3m galvanised pole	\$35	Satellite 2 way splitter	\$1.50
3" 3.5m galvanised pole	\$40	Satellite 3 way splitter	\$2
3" Triangle Pole for C band dish	\$50	Satellite 4 way splitter	\$2.50
Speaker Stand for caravan use Ku dish	\$45	4 way multi-switch	\$35

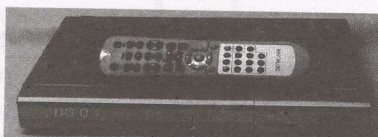
This Month Special

Optus B3/Pas 8 Free To Air channel Package

5x Phoenix 2800A digital satellite receiver
5x 64cm foldable arm dish
5x 11.3GHz/10.7GHz/universal Ku band LNB your choice
5x Gutter mount/wall mount
One Box RG-6 Cable

\$975 (\$195/each x5)

Magix 9600 \$145 ea our clear out price don't miss out with embedded cam and 2x cam slots



Optus B3/Pas 8/Optus C1 Irdeto embedded channel Package

Koscom 1600A Irdeto cam embedded digital satellite receiver x 5
64cm foldable arm dish x 5
Zinwell 11.3GHz/10.7GHz/universal Ku band LNB x 5
Gutter mount/wall mount x 5
One Box RG-6 Cable
That's only \$255 each

\$1275 5 Unit Package Price

C band free to air channel Package

5x Phoenix 2800A digital satellite receiver
5x 2.3m SD mesh dish
5x Zinwell C band LNB
5x 3" 3m galvanised pole
One Box RG-6 Cable
That's only \$395 ea crazy!

GREAT FREIGHT DEALS TO N.Z. CALL OR E-MAIL FOR A QUOTE

\$1975

Best performance



Paralipses 1.2m prime focus panel dish
\$160/each
AZ/EL mount \$32/each



Easy transport
Last stocks of mesh dishes from USA

Paralipses 2.6m mesh dish

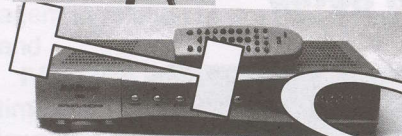
\$1500/
(300/each x5)

Multi-beam 1m offset dish
Ku band satellite from Optus B3 + Optus C1 + Pas 8 + Pas 2
Just one dish to receive all

\$150/each



SATLOOK



Koscom 1600A Irdeto Embedded Satellite Receiver \$200 with free Optus Aurora card
Buy 10 or more and get 10% discount & one box of 305m RG6 cable for free

SATLOOK Digital NIT \$1395

Satellite-receiver 920-2150 MHz.
Spectrum-analyzer with expanded spectrum.
• Digital BER, QPSK and S/N-ratio.
• 4.5" B/W Monitor for PAL/NTSC/SECAM.
• Tunable sound 5.5 - 8.5 kHz.
• LNB voltage 13/18V, 22 kHz tone switch.
• DISEQC control (1.0, 1.1, 1.2).
• KU- and C-band (normal inverted video).
• 99 memory-positions for spectrum pictures.
• Satellite identification.
• Symbol rate 1-30 Msymb/s.
• RS 232 for PC connection.
• Built in, rechargeable battery.
• Only 5 kg complete with carrying-case.
• Transponder content analysis.

Made in Sweden



COMBO \$2295

The combination of SATLOOK Digital NIT and TVLOOK
• Input frequency: 2-900 MHz and 920-2150 MHz
• 4.5" B/W Monitor for PAL/NTSC/SECAM
• Lots of memory positions for spectrum pictures
• RS232 for PC-connection
• Built in, rechargeable battery. Only 7kg complete with carrying case
TV-PART:
• 2-900 MHz spectrum analyzer
• Presents full range spectrum (and expanded)
• Very high accuracy, ±1dB (at 20°C)
SAT-PART:
• 920-2150MHz spectrum analyzer. Digital BER, QPSK and S/N-ratio
• Satellite-ID and TV/Radio-channel info (NTT)
• Tunable audio bandwidth 5.5-8.5MHz
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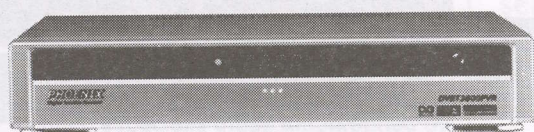
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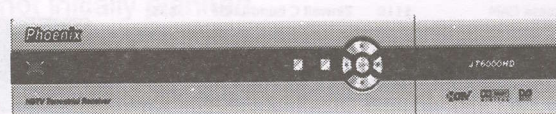
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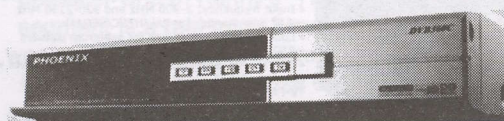


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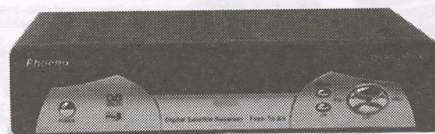
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Tens, hundreds, thousands rise in revolt to Optus Aurora "Security Audit"

There is a saying that if you want to find out a man's threshold for pain, take away his food. And if you want to find out his breaking point, "take away his television." Optus Aurora has found the breaking point.

As Rolf Deubel (MadMax) had observed some years ago, "there remains unused bit space inside of the Optus (Aurora) Irdeto 1 software where further nuisance could be committed."

What appears below is a 'legal notice' found with each new Optus (Aurora) Smart Card issued through a co-operating distributor.

Note this fact: WIN, GWN, Central 7 and Imparja are NOT subscription television and while contrabanding of cards which access these services might otherwise be illegal, it is not illegal under the provisions (below) found in section 4.

1. Agreement

This End User Agreement forms part of your purchase of the Aurora smart card ("Smart Card") from Optus Networks/Satellite Pty Ltd ("Optus"). By placing an order for a Smart Card or proceeding with the installation of the Smart Card or using the Smart Card, you will be taken to have read and accepted the terms and conditions set out below.

2. Smart Card use

a) The Smart Card is and shall remain the property of Optus. Optus may modify or substitute the Smart Card from time to time where Optus has a valid reason, such as an upgrade or new release of the Smart Card.

b) You agree: I. to keep the Smart Card safe and to use it in accordance with Optus' or agent's instructions from time to time.

II. not to lend, sell, dispose of, move, damage or otherwise interfere with the Smart Card, and not to alter, modify, disassemble or reverse engineer it.

III. to comply with any installation instructions provided by Optus or its agent in relation to the Smart Card; and

IV: to use the Smart Card at all times only in accordance with all laws and regulations applicable to you.

c) At the end of this Agreement you must make the Smart Card available to Optus for collection in good condition.

3. Warranties & Liability

a) Optus warrants that the Smart Card will be free from defects in manufacture and workmanship for a period of 12 months from the date

of first installation of the Smart Card into a decoder. Optus will replace the card free of charge (excluding postage, handling and installation) if such defects emerge during this warranty period, unless the damage has been caused by mishandling by you. Replacement of the card shall be your only remedy pursuant to this warranty.

b) Optus does not warrant that: your use of the Smart Card will be uninterrupted, that it will provide a timely, secure or error free service or that it will be free from viruses. The Smart Card will operate with any set top box, television or any other equipment used in connection with the Smart Card.

c) Optus: I. excludes all conditions and warranties implied into this Agreement to the extent permitted by law; and

II. to the extent that Optus is unable to exclude liability, Optus limits its liability in connection with Optus' supply of the Smart Card to replacement of the Smart Card.

d) To the extent permitted by law, Optus excludes liability to you for any loss of revenue, loss of profits, loss of anticipated savings or business, economic loss, loss of data, loss of value of equipment (other than cost of repair), loss of opportunity or expectation loss, or special or indirect damages connected with this Agreement.

e) Optus' liability to you for loss or damage which may arise in connection with this Agreement (whether based in contract, negligence, statute of otherwise) is limited to an amount equal to the fees paid by you for the Smart Card. This clause 3(e) does not

apply to Optus' liability for loss or damage arising from personal injury (including sickness, death or disability).

4. Security

a) Optus regards the piracy of subscription television services as a serious matter. Piracy occurs when a viewer or end user gains access to a subscription television service without payment to the relevant subscription television provider.

Piracy is also the sale, manufacture, and distribution of broadcast decoding devices. Piracy is a crime that incurs both civil and criminal penalties. Piracy also constitutes an offence under State legislation dealing with fraud and obtaining benefits by deception.

b) In order to assist Optus prevent fraud and piracy in connection with the Smart Cards Optus requests you to notify Optus immediately on becoming aware of any such fraud or piracy, including all instances of unauthorised reception of the Services whether through piracy of the technology or otherwise.

5. General

a) This agreement is governed by the laws of New South Wales, Australia and each party submits to the exclusive jurisdiction of the courts of such state.

b) Optus may vary the terms and conditions of this Agreement at any time by giving you notice of such variation.

c) Any provision of this Agreement which is or becomes illegal, void or unenforceable will be ineffective to the extent of such illegality, voidness or unenforceability and will not invalidate the remaining provisions."

One man's threshold of anger

10 April 2006

Mr. Greg Cupit
ACMA
PO Box 78
BELCONNEN ACT 2616

Dear Mr Cupit,

I am writing to lodge a formal complaint about the way OPTUS went about a security audit in relation to access to the "FREE TO AIR" television services available from the C1 satellite (so-called 'Out of Area Service'). During the security audit they managed to disrupt our normal business activities creating a barrage of phone calls to our office (nearly 200 in the first five days after the audit was initiated) while simultaneously OPTUS totally neglected to answer their own phone lines and their limited fax line was overloaded and quit functioning.

OPTUS in fact managed to turn off many legitimate (defined as using proper access cards and receivers, previously trouble-free) causing a wide range of new problems for us and the hundreds of other 'front men' (dealers like ourselves) who attempt to be their field service arms. OPTUS did their security audit software changes in the wee hours of the morning, nominally a good time save for the fact that a large percentage of the users of the AURORA service live where electricity is dear or intermittent and when not in use their decoders and other satellite equipment is switched off (ie. therefore unable to receive new satellite-sent instructions).

A company with more concern for their clients would have made an effort to advise the users and dealers *in advance* of this major changeover, with instructions to leave equipment connected and functioning for re-establishing a new security audit connection via satellite. Many of my clients live where they depend upon wind turbines, solar panels and other non-connected electrical sources, leaving them totally vulnerable to unannounced major changes such as this one. Other AURORA users are mobile in travel vans, again not expecting any change in their nightly TV reception.

A source at OPTUS, whom I finally reached by going through OPTUS Corporate Affairs, advised me they were 17,000 'smart cards' back ordered following the security audit debacle and there would be, "*at least a six week delay in replenishing this inventory.*" The people who need cards may in fact not need them at all - my phone calls of panic pretty much all sound the same: "*My TV has quit, I think it has something to do with the smart card; I want to order (or have ordered) a new one already.*" My quick math tells me \$100 per card and 17,000 cards is a windfall of \$1,700,000 for OPTUS. More worrisome, it gets worse for OPTUS has advised they will require all users (including those now being replaced) of Aurora to replace their original smart cards in 2008 - perhaps 60,000 in all; \$6,000,000 in new revenues for reasons nobody has explained adequately.

I also learned that OPTUS maintains but a single telephone line and one (8 hour weekday) employee to deal with Aurora calls. And, that 'department' was 'on leave' when OPTUS decided to drop the hammer and rework their Aurora software. A three word phrase: 'DUTY OF CARE'.

If this was but an isolated incident involving OPTUS management of Aurora, it might be explained, by "*It won't happen again - we are sorry it did happen.*" Alas, this is the fifth such incident involving Aurora cards, and OPTUS has never in the past nor present had the corporate 'care' to even issue clarifying explanations. Rather, they have created something called 'The AURORA OPTUS Tuning Channel' which is supposed to function as a bulletin board to Aurora subscribers. There they have listed around a dozen firms (none of which are in Tasmania forcing our people to make long distance calls to Victoria!) who are 'agents' for the Aurora smart cards, and basically saying to their Aurora subscriber base - "*Don't bother us (OPTUS) with your problems - go to these people.*" A company that 'cared' about customer relations would be expected to have contacted these 'Tuning Channel' listed firms with advance warning and answers for irate Aurora users. 'Duty of care' does not exist at OPTUS. The profile of the typical Aurora subscriber-user is they are rural, their Aurora connection is their ONLY connection to TV and radio beyond their immediate town. Sydney-siders have lots of radio, TV, newspapers and Internet access as a connection to the world. How insensitive can the OPTUS Aurora personnel be that they would deprive tens of thousands of users of TV and radio, turn off their single 'help-line' telephone, let their fax machine run out of paper, and totally ignore the problem they created?

Duty of Care? I think not.

Rural Australians depend upon Aurora more than capitol city residents depend upon radio and TV because their choice is limited, it all comes down from the sky in a single 'funnel' with no second choice option for many. Aurora is not exactly a great service but it is a service. OPTUS has played political and favouritism games with Aurora hardware suppliers from the first days of operation, never quite coming to grips with the reality that this is a service for the public first and foremost; not a backroom 'footy game' for techs and other malcontents who seem to typify the employment roster. Australia can do better than this; we must find out who these bad apples are at Optus, and force them into early retirement. More than 60,000 Australian families are asking, here, for your help.

Brian Watson. Western Video, Tasmania

Satellite TV Trade Show in Atlanta nails down where we are, and why

FTA is alive and well in the USA, contrary to both the DirecTV and DISH "opinion" and the general misunderstanding of those who earn a whopping US\$75 for installation of the popular Ku-band pay-TV services. We will explain, but not necessarily here, in this issue of SatFACTS.

More than 100 booths, in excess of 2,500 attendees, including a small but very vocal contingent from New Zealand (shame on you Australia, Solomon, New Caledonia for not showing up!). Satellite Expo 2006 was everything most installers, satellite dealers and distributors might have hoped for but never expected to find under one roof.

And it will repeat, in Atlanta, April 17-21 in 2007. You will have no-one but yourself to blame if you do not attend.

Kiwi Chris Clarke attended, along with Gisborne installer Basil Devorean. Both anticipate 2007 at the same (Atlanta Convention Center) facility.

Clarke: *"I found more products, not available at this time in New Zealand and Australia, than I could possibly schedule for introduction here in the next 12 months."* Chris is the recently appointed distributor for Patriot products in the Pacific. Devorean: *"I attended the seminars leading to test-certified approval for satellite Internet delivery and with the introduction of V-SAT and iPSTAR here in New Zealand, what I learned and how it will apply to my local East Coast business in the next 12 months is unmeasureable; it was great!"*

And because Coop's new book (Television's Pirates) was first available at the Atlanta show, a constant stream of 'old timers' (C-band pioneers from the 80s) came by the DMS International booth to exchange 'favourite C-Band stories' from yesteryear. Out of this something quite attractive is happening; a "C-Band Reunion" of satellite pioneers is in preliminary planning stages to coincide with the 2007 Atlanta Expo. A small handful of C-Band pioneers continue to push the still significant advantages of the lower frequency band while marrying this knowledge to a recent explosion in Ku-Band FTA. Mike Kohl of Global



Mike Kohl, C-band pioneer extra-ordinary (left), demonstrates what C-band illiterate Ku band generation dealers should know about antennas. The technology has improved - the average 'smart level' of installing dealers has not. This has turned into a "wham-bam-thank you m'am" kind of business, Ku-only and C-band forgotten.

Communications is perhaps the leading activist in maintaining an information base covering both C and Ku FTA services. His web site (www.global-cm.net) is the sort of resource which only 24 x 7 dedication can produce.



Mike Kohl's "lonely" C-band antenna aside, this was the Ku (and Ka) antenna yard. Approximately 20% of the dishes here were in fact 'two-way' much to the pleasure of Kiwi Basil Devorean.

SatFACTS spent considerable time with Kohl and came away amazed at not only the variety of FTA still available, but even more shocked that virtually all of the DISH and DirecTV installers attending the Expo had absolutely no clue that such FTA services existed. Tim Heinrichs of DMS, Barney Fournier of Volunteer Satellite and others with FTA equipment booths on hand agreed there was an almost 'secret knowledge' problem here - the very people who so willingly accept US\$75 install assignments from the two major Ku-direct home dish programme suppliers remain blind to an even larger business opportunity; FREE (!) satellite TV

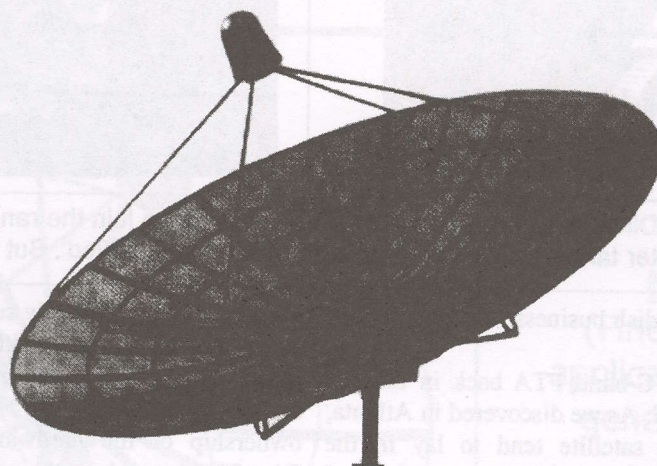
service. "How novel is this?" asked one Ku-band installer we chatted with. "When did free to air start - is it brand new?"

So there is an education challenge here - when a 2m C/Ku band dish will provide several hundred Spanish language TV channels FTA, live and direct from essentially all of the Central and South American countries, while commercial DTH provider DISH charges US\$29.95 monthly for access to a dozen or fewer Spanish language channels, obviously the marketplace needs to be better informed. We discussed this at length with numerous attendees and came to the reasoned conclusion more emphasis should be placed on this little

Expo 2006 held certificate-driven special knowledge seminars the first two days; the exhibit hall opened for day 3, day 4 and half a day on day 5 (a Saturday). The Atlanta Convention Centre is borderline huge and although the aiseways were often teeming with attendees, they never felt crowded.



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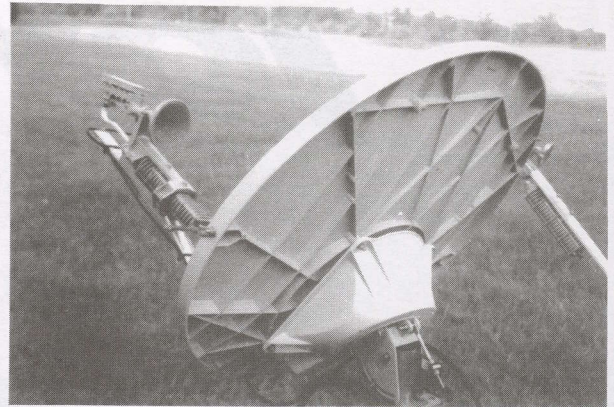
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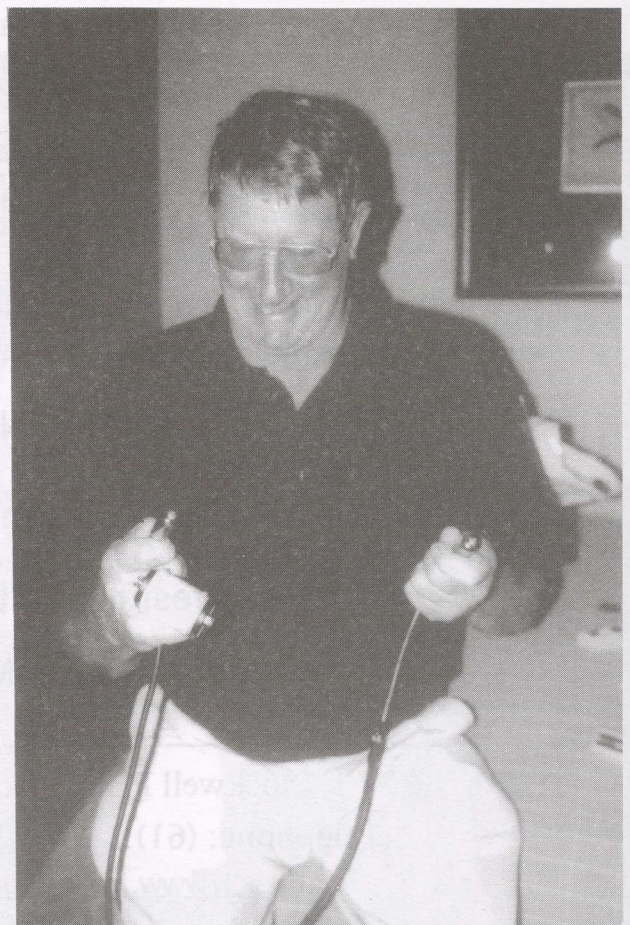
To break out of the DISH/DirecTV income stranglehold, installers can join the ranks of VSAT and small 2-way terminal installers after taking training courses and becoming 'certified'. But it remains a challenge.

understood aspect of the home dish business. So here is the germ of a plan for Expo 2007.

The people who pioneered C-band FTA back in the 80s knew their technology very well. As we discovered in Atlanta, those pioneers still active in satellite tend to lay in the background essentially frightened of the awesome market and political power exhibited by DISH and DirecTV - to whom FTA is some sort of disease to be kept under the rug and off the agenda. By combining a "C-Band 20 Year Reunion" with real world FTA training seminars conducted by folks such as

Mike Kohl, two mutually supportive functions would benefit. Those Ku installers cranking out the \$75-payment installs would hopefully realise that FTA offers an entirely new aspect to satellite TV - *free reception* and customer ownership of the hardware (versus the many DISH and DirecTV plans where the customers will never totally own the systems). Even a quick study of Mike Kohl's website (www.global-com.net) leaves you wondering how something so obvious could be overlooked by virtually an entire industry. We'll have more to report on this initiative in future issues.

Two Kiwi Blokes on the town. Napier's Chris Clarke (left) inspects one 2006 version of the fabled 'flat dish' concept - which produced disappointing reception (see text). Devorean (right) was amused with magnetic cable puller that allows you to snake RG6 and other wires down through a hollow wall. Clarke brought one home as hand carry baggage leaving a trail of irate, nervous airline security inspectors in his wake.

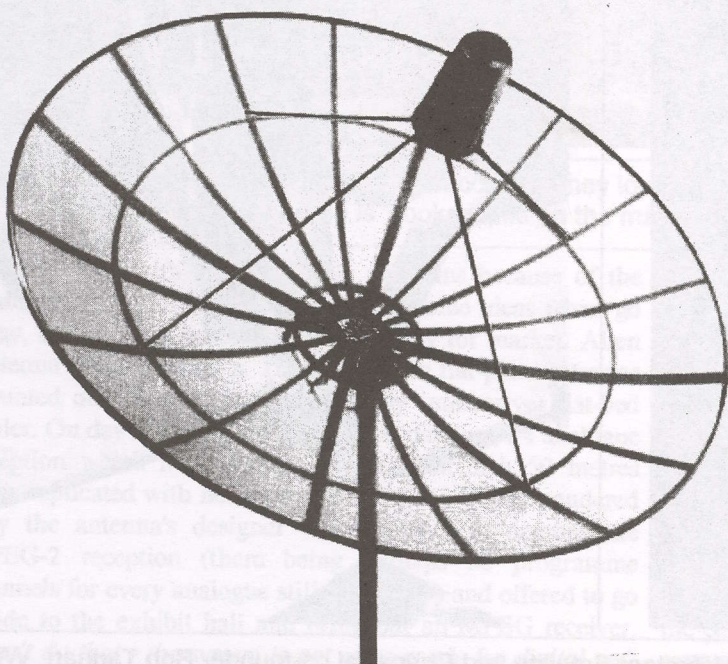




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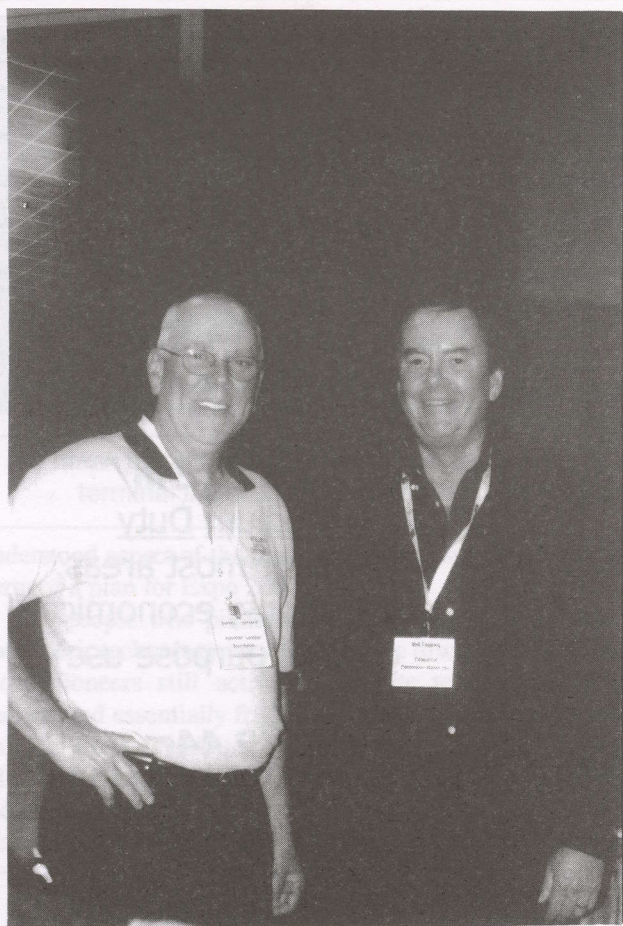
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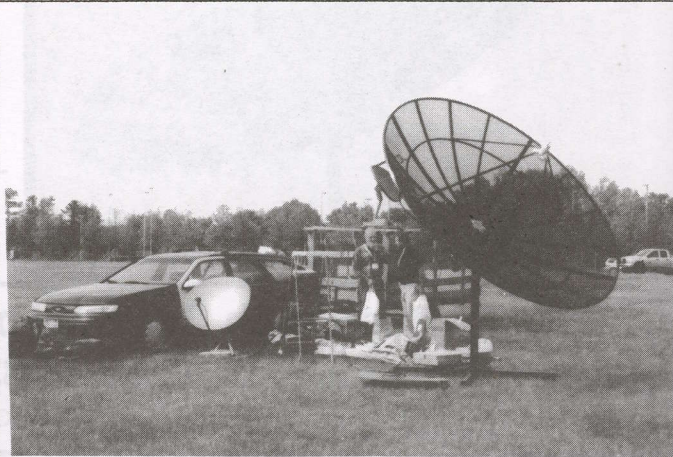
The old guard (left): Barney Fournierat of Volunteer Satellite and Chaparral co-founder Bob Taggart. With Taggart's 1974 start in small-dish systems, they total nearly 60 years of hands-on satellite experience. Scott Greczkowski (foreground, right) operates North America's most successful satellite web site (<http://www.satelliteguys.us>), a combination of hot-news-daily, chat groups, and insider information that drives the management at DISH and DirecTV crazy. He looks young, but in 1978 he managed a Public Access cable studio in Plainfield, Connecticut where ESPN began as a one hour per day sport news program!

New hardware?

The majority of what was on display fell into the "new but not earth shaking" category. Pricing for complete Ku-Band FTA systems, at the dealer level, have tumbled down to just under US\$100 as 'entry level' hardware packages. Quality receivers, such as from Traxis, typically sell in the US\$110 and up region and the latest blind-search software versions with PVR built-in were notable by their back-order status.

There remains one (Arkansas based) firm cranking out screen mesh dishes (see example, p. 7) in the 6, 8, 10 and 12 foot ranges but one measure of how small this market has become is word that they have been several months collecting orders for the largest (12') version and will not 'run a line' of them until they have solid orders for 50 (!). Taiwanese stamped solid metal dishes are just now showing up in North America; razor sharp metal edges and all. The 6 and 8 foot versions

Internet? Antennas? It all ties together when satellite manufacturers, distributors and dealers congregate at a show such as Expo 2006. The 2007 dates? Announced as April 17 - 21 at same Atlanta Convention Centre.



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The secret of DBS (DISH/DirecTV) success is they low-ball the start-up costs (\$19.95 for four in-home IRDs!) and then once the home is 'hooked' pile on the marketing pressure to raise the monthly service fees.

will sell even with their assembly problems because of the dealer pricing; sub US\$100 each. And some ideas never go away, even if they never quite seem ready for market. Alien Antenna Works (photo, p. 12) parked twin flat-plate antennas mounted on an elaborate (and visually impressive) flat-bed trailer. On day one, no pictures. Late on day-two, P4 analogue reception which Mike Kohl's screen mesh dish 50 metres away replicated with noise free clarity. Kiwi Clarke pondered why the antenna's designer was reluctant to demonstrate MPEG-2 reception (there being perhaps 50 programme channels for every analogue still functional) and offered to go inside to the exhibit hall and bring out an MPEG receiver. "Can't do that - the system is not quite ready for digital yet" was the reply. We worked out why - although the antennas plus trailer looked like a \$50,000 showcase, for unexplained reasons they had elected to use 1983 era C-Band LNBs which may once have been 50 degree Kelvin, and certainly had far too much phase noise content to make digital play. Somehow this did not do much for the lasting impressions one took away from the demonstration.

And there was Viewsat/Viewtech, likely to be coming to a Pacific region distributor in the next few months. President Jung Kwak knows his hardware design and what grabbed our attention was his extensive line of FTA and CA receivers and - the corker, a Korean adaptation of the now wildly popular Slingbox system. Slingbox was initially reviewed in SatFACTS for July 2005 after the product was introduced in America. Slingbox is an Internet interfacing device allowing you to transfer your at-home TV reception to a distant point, change channels from afar, even start, stop and program your TiVO box. Kwak handed SatFACTS two Beta-Test versions of his "Viewall/TV Anywhere" which we in turn left in California with SatFACTS staffer Tim Alderman to make play and create reviews, here. Stay tuned.

Perhaps the most impressive demonstration during our Expo 2006 days came not from an exhibitor but rather from Scott Greczkiwski, the SatelliteGuys.us administrator. Scott's 3G cell phone neatly tucked into a belt loop carrying case, his laptop and a high speed digital camera are all that he requires to create havoc throughout North America. He is a walking notebook of facts big and trivial and has the tenacity of a hungry bulldog in uncovering truths which many would prefer left buried. Example: "Charlie Ergen (DISH's bossman multi-billionaire) tells me that when he wants to know what

is really happening in his company, he checks the DISH forum on www.satelliteguys.us." Scott routinely breaks corporate announcements days and weeks ahead of their formal release through normal channels, much to the chagrin of folks like Ergen.

The amazing demonstration? Scott unclipped his 3G cell phone from his belt, pushed a few buttons and there on the screen was live action satellite-delivered television. From his home in Connecticut (around 800 miles distant), through 'Slingbox Mobile.' He pushed a few more buttons and the channel back home changed and appeared a second later on the cell phone screen. Pretty impressive but the best part we cannot tell you - sworn to secrecy and all of that stuff. The source of the programming was - *nope*. Can't tell you but truly amazing!

Another almost-as-innovative bit of technology was uncovered from a fellow named Joe Fiero (NuTel Broadband Corporation; Email joe.fiero@nutelbroadband.com). Joe goes back to the first C-band hardware in the late 70s, was a partner in business with C-band legend Shaun Kenny (the Boresight TV program; see p. 4 letters, here). The interesting bit: Joe's business card includes the line, "building the next generation of telephone companies one partner at a time." Which means? He has created a 2.4 GHz packet relay system that allows densely packed urban areas to communicate at mind boggling speeds directly into fibre optic termination hubs he locates in each region served. Think of cable television for a small community, now substitute wireless 2.4 GHz links for the cable and fibre backbones that link each of the systems to central core points around the country. In this way, NuTel is able to deliver two-way Internet without involving local telephone firms, or cable companies. It is akin to the early MATV and SMATV systems that blossomed throughout America in the 70s and after, each one is 'stand-alone' but through high capacity fibre (available in abundant quantity even in rural areas of America) each local area is tied together into a network. Our key question related to how he gets along in the terribly over-used and interference prone 2.4 GHz (S-band) unlicensed system region. His answer: "Good engineering - we keep the signal levels up well above threshold, use directional transmit and receive (yagi) antennas and seldom use more than 100 milliwatts at a transmit site." Yes, we are after Joe to share his technology here in SatFACTS.



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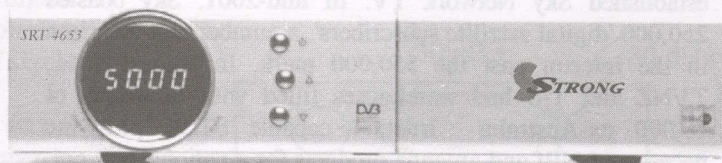
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TVNZ, TV3 (NZ) announce first-step towards DVB-S Service

It has been a long, arduous trail with many diversions but there is now a light at the end of the political tunnel; DVB-S (satellite delivered FTA digital TV service) now appears to finally be on track for introduction into New Zealand. And make no mistake - digital's introduction into New Zealand has been a political hot potato from day one. No 'party in power' wants to be voted out because millions of TV sets and VCRs are suddenly out of date.

It was in mid-2001 that Television New Zealand, in an agreement with would-be national pay-TV supplier Telstra Saturn, came within weeks of launching a nation-wide satellite delivered package of channels including both FTA and CA. At that time, TVNZ held 2.5 B1 transponders and perhaps the weakest link in the plan was a shortage of bandwidth to create a successful competitor to already established Sky Network TV. In mid-2001, Sky boasted 250,000 'digital satellite subscribers', a number that has risen in the interim past the 550,000 mark. In August 2001, TVNZ and T-S had warehouses filled with in excess of 10,000 ex-Australia Irdeto-1 capable STBs, plus the necessary LNBf and antenna products for a national roll-out. It would all come crashing down around TVNZ as Saturn experienced serious management and funding challenges. TVNZ was left with a difficult decision - go it alone, FTA only, or cancel the project. Government would intervene making their decision. Kill the project. Sky breathed a giant sigh of relief - their monopoly would sustain.

Press announcement

(7 April 2006) "Agreement reached to lease satellite capacity: BCL, TVWorks and TVNZ have reached agreement to negotiate a full transponder on the Optus D1 satellite which will enable the provision of free to air satellite delivered digital television services. (The) agreement provides that BCL will lease satellite space directly with Optus and then sublease to both TVWorks and TVNZ." There is more, none of it important.

Sometime in May, TVWorks/CanWest plus TVNZ go to the Minister of Broadcasting, Steve Maharey, with a written proposal; the final one. Government will not respond immediately - logic says that as this plan involves a satellite (D1) not scheduled for launch until mid-winter, they will wait until it is at 160E, and functioning, before committing their approval. The stench of B1's 14 hour failure lingers still, and there are those poised to write letters to their newspapers damning anything that shuts down their local hilltop terrestrial transmitter in favour of "all our eggs in the satellite basket."

In fact, that will be the major unknown until government does announce their approval; should *all* FTA television be on satellite for all viewers, or, should only those viewers located beyond reach of digital terrestrial transmitters be dependent upon satellite? BCL is the key here. And that government owned head Wayne Brown is in the Cat-Bird

The (possible) time line

May 2006: Government Cabinet Ministers receive written report, recommendations from TVNZ and CanWest

May 2006: TVNZ submission deadline from potential DVB-S FTA receiver suppliers; difficult demands include MHEG-5

Mid-2006: D1 is successfully deployed to replace B1 at 160E

Following D1 placement: NZ government 'signs off' on TVNZ + CanWest plan

Following government sign-off: TVNZ lights up one or two ("test" - keyword) transponders with FTA (TVOne, TV2, TV3, C4, Maori TV) plus a number of 'contract services' including CCTV9, DW

Late 2006: TVNZ, CanWest announce public availability of 'FREEVIEW' service with major national chains (Harvey Norman, Dick Smith) simultaneously promoting 'FREEVIEW System packages'

seat. New Zealanders will recall Brown from his Sunday newspaper column, and, his position as controversial head of the Auckland Health Board. In his spare time he 'chairs' BCL.

'Brownie' is committed to transitioning BCL from a big money making state owned enterprise to the next plateau. BCL built the original terrestrial microwave links and hill/mountain top transmission sites from the late 50s (as the Post Office) onward. BCL occupies 'the high ground' at more than 400 locations, and virtually all of the FM and TV broadcasters use BCL sites, equipment, tower space to broadcast. Brownie does not want to be the BCL Chairman who oversaw BCL losing this big money making monopoly; their biggest 'book-asset'.

And because BCL is a state owned business, he has the 'ear' of the highest members of government. If, in the analogue to digital transition, BCL lost essentially all of its mountain top customers for TV, BCL income would plummet by as much as 30%. So can there be an accommodation, even if the ultimate clients (the homes with TV) end up paying *more* for their ongoing service? Brownie believes that a combination of DVB-T (terrestrial from those mountain top sites) and DVB-S (owned and controlled by BCL as a 'value-added' intermediary) is best for his masters; government.

Which brings us to the final decision by Cabinet. Will it be DVB-S only - totally dependent upon Optus and their D1 satellite, or, will it use terrestrial digital sites for the major population centres and transfer those who will live beyond reach of digital (UHF) terrestrial to satellite?

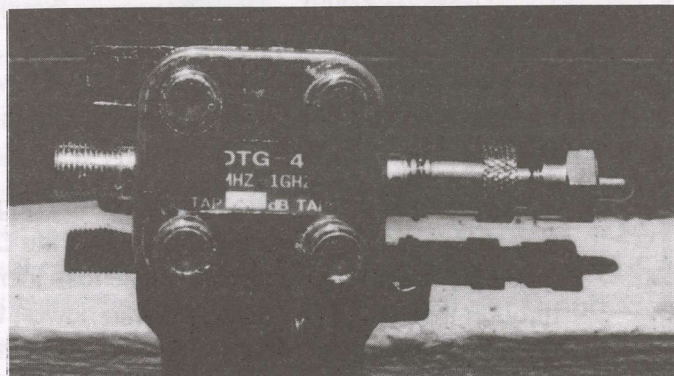
It is not a technical question - although Brownie has plenty of technical ammunition available. It will be political.

Using the 'Directional Tap' in MATV/SMATV System Design

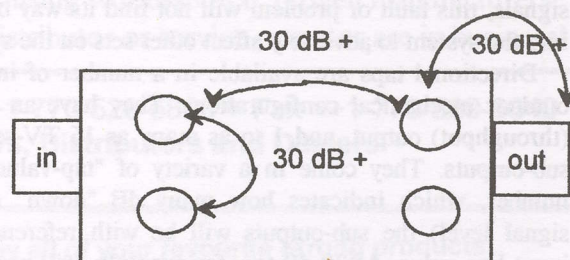
One of the handiest items in the MATV/SMATV installers kit bag is the "directional tap," a device that allows the system designer-installer to tailor-make the exact amount of signal which will reach into a TV receiver connected to the system. In a digital age when too much signal delivered to the TV or STB is as dangerous as too little signal, the ability to properly control the amount of signal each receiver accepts is critical to proper system operation.

For analogue operation, a TV set performs properly with levels between 55 dBuV and 90 dBuV, a function of the receiver's 'AGC' or automatic gain control circuitry. For digital operation, high signal levels (greater than +80 dBuV) to STB or receivers will often cause pixelation. Within the distribution system, an 'impedance mis-match' at some point will, with analogue, create ghosting (blurred right hand edge of images, sloppy on screen lettering) while with digital mis-match may well create total signal loss; a perplexing challenge if your SLM/analyser says there is plenty of signal available!

Standard splitter-derived systems, where one signal source (such as from an antenna whether amplified or not) merely 'divides' the input available signal into (typically) equal parts. Splitters are rated for 'loss' when in fact they don't lose very much if anything at all - they merely divide the original signal level into equal (or by design, unequal) parts. A +80 dBuV source (antenna, amplifier) signal divided into two parts by a two-way splitter will typically be +80 at the input and +76 at each of the two outputs. A four-way splitter with +80 dBuV input will divide into four more or less equal parts of +73 dBuV at each of four output points. Splitter "loss" ratings suggest a reduction of 3.5 to 4 dB for a 2-way device, a reduction of 7 dB for a 4-way device. Splitters suffer from one basic flaw; a lack of "isolation" between outputs. A version of splitter, called the 'back-matched splitter,' is slightly superior in this respect to low-cost splitters but in the end there is not much isolation provided.

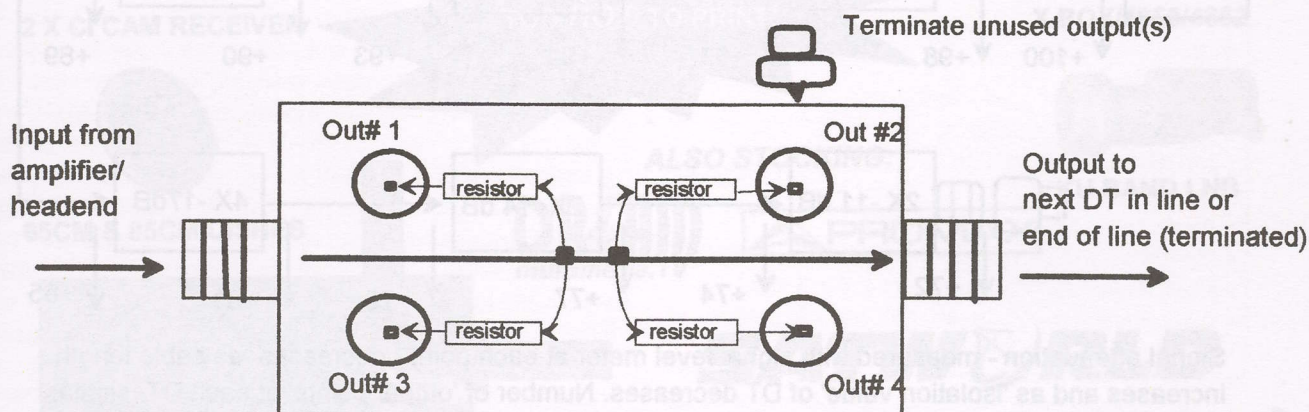


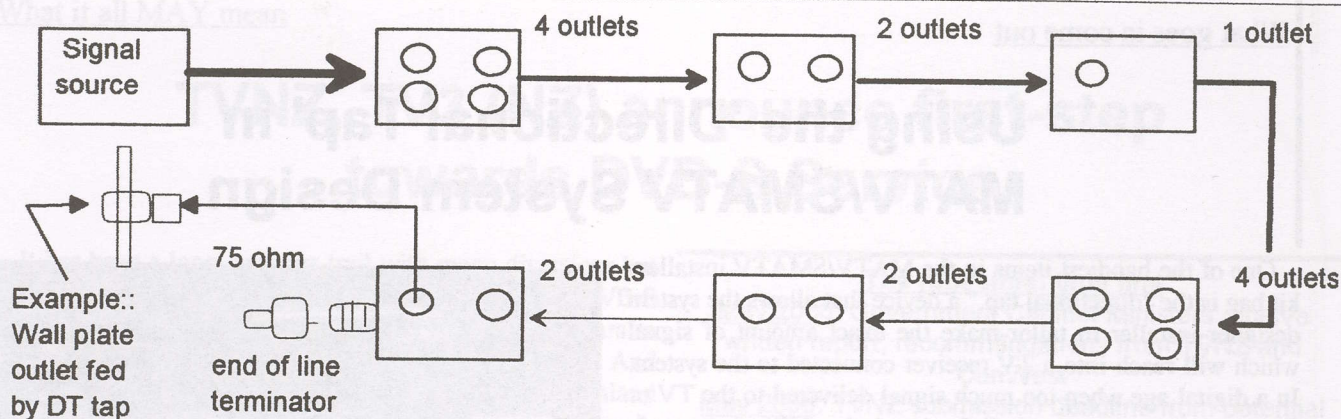
One version of through-put 4-outlet directional tap rated to 1 GHz.



Directional tap's provide high "isolation" between outputs and through-put connection points ensuring that no TV sets connected interact with others.

"Isolation?" A measurement of how if something goes wrong at one of the outputs, this will not 'feed-back' into the system and cause new problems for other outputs (TV sets) connected to the system. A DT or directional tap corrects this.





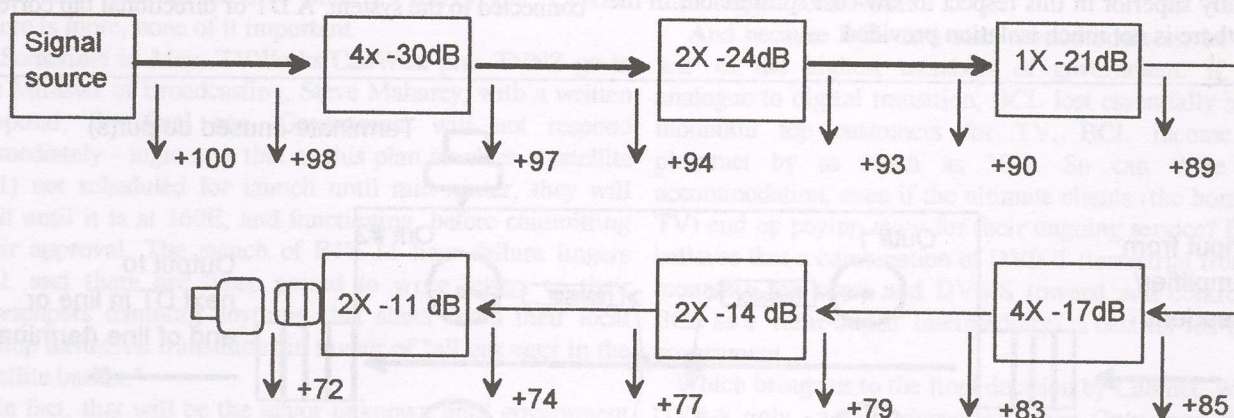
A maximum signal voltage appears at the origination amplifier / headend. Attenuation reduces that level with cable loss and through-loss of the DT (directional tap), both reducing the amount of signal available at any specific point. Cable loss increases with the frequency (channel #) of the signals, through-loss in the DT increases with "lower" tap values and more output points. At the end of the line, and at all unused outlets on DTs in the system, a 75 ohm terminator is mandatory.

The directional tap is therefore a superior device to use when designing distribution system because it ensures that even if one output side is 'shorted' or a TV set generates undesirable signals, this fault or problem will not find its way backwards into the system to adversely affect other sets on the system.

Directional taps are available in a number of indoor and outdoor mechanical configurations. They have an input, an (throughput) output, and 1 to as many as 16 TV-set-feeding sub-outputs. They come in a variety of "tap-values", a dB number, which indicates how many dB "down" (lower in signal level) the sub-outputs will be with reference to the input line value. A -30 dB tap, for example, will produce 1 to 16 (as chosen) outputs which will be 30 dB weaker than (lower level than) the input signal level. A +90 dBuV input, less the -30 dB "tap value" will therefore be +60 dBuV at each of the onboard sub-output connectors.

Directional couplers are more efficient than splitters, reducing the "throughput" value by fewer dB than a splitter. But they do exhibit through-loss - some number of dB (or fractions thereof) lower in throughput output level than appears at the input. When you plan or design a distribution system, you begin with the output level (at the highest frequency channel) as a "known value" and calculate the cable loss between the source/headend output and the input to the first directional tap. Then you factor in the signal level you require from that DT - the sub-output level(s). Going to a DT catalogue, you then select a "tap-loss" value that separates the two numbers; a signal level of 80 dB on the main line and a desired wall outlet level of 60 dBuV equates to a -20 dB directional tap value. Past that first DT, there is more cable and then a new DT. Calculate the cable loss between the two points, and repeat the DT value exercise; +75 dBuV on the

Original signal source dBuV signal "voltage" cited (below) is for highest frequency channel in system. Lower channel numbers are adjusted at headend/origin point to "stair-step" downward so that at end of line all channels in the system are measured at approximately the same signal voltage level (+/- 2 dB).



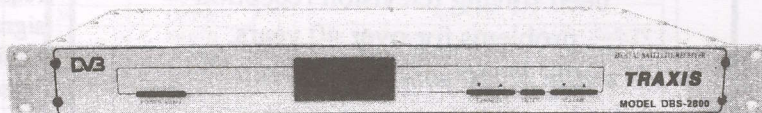
Signal attenuation - measured with signal level meter at each point - decreases as cable length increases and as 'isolation value' of DT decreases. Number of 'output points' at each DT, similar to the way a 2-way splitter has less "loss" than a 4-way, also effects the throughput signal levels. Terminator (75 ohm) at end of line ensures signal reflections (ghosts) are minimised.



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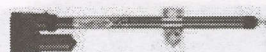
2.3M MESH DISH



C BAND LNB



POSITIONER



ACTUATOR



FTA RECEIVER



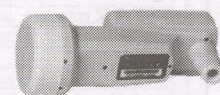
2 X CI CAM RECEIVER



X BOX/4650/4652

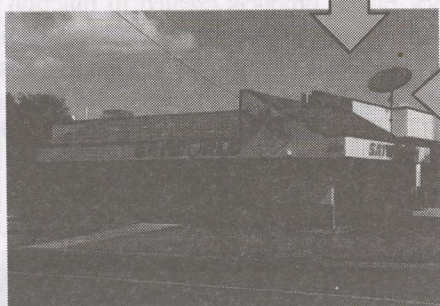


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- Cables / RG-6, RG-11; 100m, 305m

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Website www.satellite.com.sg

main line, +60 dBuV desired at the wall plate equals a -15 dB 'tap value'. This procedure repeats until you come to the end of the line, or, go into a 'repeater amplifier,' the location of which will be determined by the amplifier's recommended minimum and maximum input values. If an amplifier requires +70 dBuV input, calculate where in the line the signal level (because of cable and tap loss) comes to that number - that is the point where the second (called "cascaded" in the trade) amplifier is located. At this point your signal level is bumped back upwards to +100 dBuV or greater, and you begin the cable plus tap loss calculations anew using the second amplifier's output as a starting point.

Some caveats

Directional taps are not without their own faults and requirements. Perhaps the most important is to recognise that a directional tap has a specified input side and a specified output side; reversing the two, through careless installation of stupidity, will result in virtually no meaningful output readings from the sub-output points. "Directional" is the key word here - the signal is designed to *flow* through the DT from a specified input to a specified output and reversing it is a no-no.

The next most important requirement is that you "terminate" any unused outputs, whether sub-output or main output. A terminator is nothing more than an F fitting with a 75 ohm resistor installed internally. It screws on like any F fitting, and by doing so you assure that the DT characteristics are maintained at all outputs (sub or main) regardless of whether that particular output is actually used.

When a sub-output connects to a TV set, typically through a short run of RG6 to a wall plate and then to the TV receiving equipment, the "75 ohm termination" is provided by the "load" on the line; this would be the TV set, VCR or STB. Failure to terminate unused outputs is especially critical with digital signals, whether they are at satellite IF (950-2150 MHz) or terrestrial TV frequencies. If a TV set once connected to a DT is disconnected and that line is left "open" (unused) you can expect to have a trouble call to locate where the non-terminated line has occurred; with digital terrestrial in particular this "open line" can create problems for other receivers connected to the system through the same DT.

At the end of the line, the output/throughput point for the last DT, a 75 ohm terminator is also required. Without it, the signal level remaining at the end of the line literally "has no place to go" and this creates mis-match (line reflections) which will feed backwards through the system creating single or multiple channel 'drop outs' (unexplained signal loss on one segment of the broadband network being distributed).

SMATV distribution systems, operating either with a VHF-UHF segment distributing terrestrial signals, or, only the L-band IF range (950-2150 MHz), are no different in design from VHF or VHF + UHF only systems. Of course the component parts including the DTs, splitters if required, amplifiers and wall plate termination points must be rated for this frequency range; products created to function over only the VHF-UHF region (40-900 MHz) work poorly if at all in the satellite L-band (IF) region. Additionally, passive parts such as cable and fittings become very critical once you go past 900 MHz with a distribution system design. 950 - 2150 MHz L-band distribution systems remain exotic at this time, but they will be the 'standard' in the future as terrestrial VHF-UHF television disappears from the landscape.

SatFACTS Pacific/Asian MPEG-2 Digital Watch: 15 MAY, 2006

Bird	Service	RF/IF &Polarity	# Program Channels	FEC	Msym
Thom3/78.5	SkyChAust	3695/1455H	up to 3	3/4	5(000)
	ANT Greece	3672/1478H	1 TV	3/4	13(333)
	TARBS ME mux	3640/1510H	12TV, 12 radio	2/3	28(066)
	Ch Nepal	3626/1524V	1	3/4	15(556)
	Mahar mux	3600/1550H	11TV, 1 rad	3/4	26(667)
	RR Sat mux	3551/1600H	8TV,10 radio	3/4	13(333)
	TVK Cambodia	3448/1702H	1TV	1/2	6(312)
	TARBS/Th5	3480/1670H	12 TV+radio	2/3	26(667)
	Thai Global	3425/1725V	up to 7?	2/3	27(500)
InSat 2E/83	ETV mux	4005/1145V	6+ TV	3/4	27(000)
	Hyd Dig 2E	3910/1240V	1	3/4	5(000)
	Kairali TV	3699/1451V	1	3/4	3(184)
	Indian mux	3643/1507V	3	3/4	19(531)
	Sky Bangla	3430/1720V	1TV	3/4	6(000)
NSS6/95E	Ant Pac (Greek)	11.104H-Australia	1 TV	3/4	2(800)
As2/100.5E	Guangdong TV	4075/1075H	1TV + radio	3/4	6(000)
	Euro Bougt	4000/1150H	5TV, 19 radio	3/4	28(125)
	SatLink	3960/1190H	3TV	3/4	27(500)
	Reuters News	3905/1245H	1TV	3/4	4(000)
	WorldNet	3880/1270H	4+/18radio	1/2	20(400)
	APTIN Asia	3799/1351H	1	3/4	5(632)
	Reuters/Sing.	3775/1375H	1	3/4	5(631)
	APTIN Asia#2	3705/1445H	1	5/6	4(166)
	Macau MUX	4148/1002V	5TV	3/4	11(850)
	Dubai MUX	4020/1430V	4+, radio	3/4	27(500)
	Russian/Israel	3832/1318V	up to 4 video	3/4	7(271)
	Trace TV	3792/1358V	1	3/4	2(400)
	BYU-TV	3767/1383V	1 + 20 audio	1/2	6(530)
	3-ch miniMUX	3752/1398V	up to 3	3/4	5(640)
	Saudi TV1	3660/1490V	7+/tests	3/4	27(500)
Express2/103E	Various-tests	3675/1475R	2	3/4	4(340)
As3S/105.5E	CETV digital	3680/1470H	1+ TV	3/4	26(670)
	Zee bouquet	3700/1450V	10TV	3/4	27(500)
	Ch News Asia	3706/1444H	1TV (+)	3/4	6(000)
	Azlo TV	3716/1434H	1TV (+)	3/4	7(000)
	BTW World	3725/1425V	1TV	3/4	4(450)
	TVB 8	3729/1421H	1TV	3/4	13(650)
	Zee Movies	3732/1418V	3TV	3/4	6(500)
	TV One	3739/1411V	1TV	3/4	2(8934)
	SAB TV	3743/2407V	1TV	3/4	3(300)
	Fashion TV	3747/1403V	1TV	3/4	2(625)
	AAJ-TV	3750/1400V	1TV	3/4	2(820)
	Airrang TV	3755/1395V	1	7/8	4(418)
	Now TV +	3760/1390H	up to 10TV	7/8	26(000)
	Star TV	3780/1370V	7(+)+TV	3/4	28(100)
	GXTV	3806/1344V	1TV + 3 radio	3/4	4(420)
	Shaanxi TV	3813/1337V	1TV + 2 radio	3/4	4(420)
	Anhui TV	3820/1330V	1TV + 2 radio	3/4	4(420)
	Jiangsu TV	3827/1330V	1TV + 2 radio	3/4	4(420)
	HLITV	3834/1316V	1TV	3/4	4(420)
	Star TV	3840/1310H	7(+)+TV	7/8	26(850)
	Star TV	3860/1290V	5(+)+TV	3/4	27(500)
	Arabsat MUX	3880/1270H	10+TV, 14Radio	3/4	27(500)
	Dragon TV	3886/1264V	1 TV	3/4	4(800)
	Shaandong	3895/1255V	1TV + 6 radio	3/4	6(813)
	CCTV1	3904/1246V	1TV, 1 radio	7/8	4(420)
	Jilin TV	3914/1236V	1TV + 2 radio	3/4	4(420)
	Star TV	3920/1230H	4+ TV	7/8	26(850)
	CNN	3960/1190H	8TV, 1 radio	3/4	27(500)
	StarTV	3980/1170V	6+TV	3/4	28(100)
	Star TV	4000/1150H	8(+)+TV	7/8	26(850)
	Sahara digital	4020/1130V	8TV, 1 radio	3/4	27(250)
	Hubei TV	4035/1115H	1TV + 2 radio	3/4	4(420)
	Tianjin TV	4046/1104V	1TV + 2 radio	3/4	5(950)
	Sichuan TV	4051/1099H	1TV + 1 radio	3/4	4(420)
	Qinghai TV	4067/1083H	1TV + 2 radio	3/4	4(420)
	Hunan TV	4082/1068H	1TV + 1 radio	3/4	4(420)
	Fashion/HK-Asia	4088/1062H	1TV	3/4	2(626)
	Pakistani TV	4091/1059V	4TV, 1 radio	3/4	9.33
	Sun TV	4095/1055H	1	3/4	5(554)
	PTV National	4106/1044V	1TV, 1 radio	3/4	3(333)
	TVB8 Mux	4111/1040H	4 TV	3/4	13(650)
	Indus News	4115/1035V	1	3/4	3(331)
	CCTV bqt	4129/1021H	4 TV, 4 radio	3/4	13(240)
	Zee Bqt #2	4140/1010V	8(+)+TV	3/4	27(500)
	Henan TV	4166/984V	1TV + 8 radio	3/4	4(420)
	Fujian TV	4180/970V	1TV + 2 radio	3/4	4(420)
	Jiangxi TV	4187/963V	1TV + 2 radio	3/4	4(420)
	Liaoning TV	4194/956V	1TV + 2 radio	3/4	4(420)
Cak1/107.5	Indovision (S-band)	2.535, 2.565, 2.595, 2.625, 2.655	33(+)+TV	7/8	20(000)
T'Kom/108E	IndoBqt	3460/1690H	up to 6	3/4	28(000)
C2M/113E	TPI	4185/965V	1	3/4	6(700)
	Anteve	4144/1006V	1	3/4	6(510)
	Kabelvision Mux	4080/1070H	7+ TV	7/8	28(125)
	Indostar	4074/1076V	1	3/4	6(500)
	Satelindo	3935/1215H	1	3/4	6(700)
	Bali TV	3926/1224H	1	3/4	4(208)
	Indo MUX	3880/1270H	3+ TV	7/8	28(121)

Receivers and Errata

CA (#1, 3); FTA audio #2
Late July 04: room for more (FTA)
CA + 23FTA(A1TV, IRB3, Visjon Norge, Pakistan)
New 03/03; FTA
Thai + Indian services; FTA inc. Vibe TV, Sindh TV
3TV, 5radio inc. Hellas TV Greece FTA
FTA
3FTA: TV5, VTV4, ATN Bangla
FTA (reaches SE Australia)
Several ETV now here; wide beam
SCPC, OK E. Aust. wide beam
SCPC, OK E. Aust wide beam
corrections 12/02
New - November 2002
Now CA; was 11.083H
July 04: FTA
FTA TV + radio; Russia, Port, Spain, Italy/Euro Bqr
Real Madrid (V769, A770) English FTA
Was 3923H; sometimes FTA
FTA; multiple audio services V2360, A2320
Sometimes FTA; also 3895Vt
FTA & CA
FTA and CA - NASA reports included
5 chs TV, FTA, some tests
FTA ; Dubai Sports Ch some English, soccer-
Two Israel, two Russian (REN-TV)
new here Dec 2004; Euro-French music videos
Increased coverage; great variety audio chs(03-05)
Sun-TV, Surya TV, KTV (FTA)
FTA MCPC; Yemen, MBC EUROsport tests
Now loaded from 96.5E; svrl below 3900 all RHC
replaces analogue same freq. V33, A32
Now SECA 2 CA (10-04); Radio Aust. Eng. A2011
English + V1160, A1120; 525, 625 versions
Was parallel to 3640Hz analogue (now gone)

Conax CA, all Hindi films
Also reported 3.333, 3/4 October 2005
SAB may no longer here here; moved to NSS-6?
new frequency October 2005
New April 2005; English, urdu
FTA SCPC; New PIDs V3601, A3606 June 2003
CA + FTA; DW, TV5 here now (late 2005)
NDS CA (Pace DVS211, Zenith)
Guangxi TV; was As2
Was As2
Was As2
Was As2
Was As2; Heilong
NDS CA (Pace DVS211, Zenith)
NDS CA (Pace DVS211, Zenith)
New April 2004: link to Optus B3 Globecast
Shanghai
Apparently Mongolia

Star Sports Asia (+), FTA NTSC; V514, A670 (10-04)
PowVu CA; new SR Apr 29; CNN radio FTA
NDS CA; Star News India FTA VPID 514, APID 648
NDS CA w/ 4(Chinese) FTA
New Sr September 2004
Was As2
new December 2004
Was As2
Was As2
Was As2
New July 2005
new Sr, channels, April 2006
"History Channel" - SCPC, some English

MATV Ch Movies now Irdeito 1
Hindi (+ "Plus"); day parts
moved from 4115
Now SECA 2 CA (10-04); 1 occ. FTA (varies)
Was As2
Was As2
Was As2
Was As2
NDS CA using RCA/Thomson,
Pace IRDs; 2.535 has 2 FTA
also 3586H/17.500, 3496H/19.615
FTA SCPC; NT/NC only
change from 4055V; FTA SCPC
also try 3500H, 27.000, 3/4; strong NZ
FTA (new 06-03); V2201, A2202
test card - only - reported
FTA, may not be active full time
FTA - Sr change 01/03: errata

Bird	Service	RF/IF & Polarity	# Program Channels	FEC	Msym
	Brunel/Sing	3733/1417H	1TV	3/4	6(,000)
	SCTV	3726/1424V	1TV	3/4	6(,620)
	RCTI	3473/1677H	2	3/4	8(,000)
As4/122E	CCTV internal	4100/1050V	6	3/4	27(,500)
Jc3/128	Miracle Net	3996/1154V	3 up to 6	5/6	22(,000)
	Asian bqt	3960/1190V	up to 8	7/8	30(,000)
Ap6134E	Multiple	4140/1010V	up to 8	7/8	27(,500)
T18/138	Tests	3460/1690V	8	3/4	30(,000)
Am3/140	STS +	3731/1419R	1	3/4	3(,200)
Jc2A 154	BYU-TV	3915/1245V	1+ 20 languages	3/4	4(,166) (?)
MeasSs2	Astro Mux	11.602H	up to 17TV	3/4	41(,500)
	VTM MUX	11.522V	3 TV	3/4	9(,766)
B3/152	AuroraBiz	12.407V	4 TV, 10 radio	2/3	30(,000)
	UBI/tests	12.425V	up to 13 TV + radio	3/4	22(,500)
	Globecast 2	12.525V	13 TV, 8 radio	2/3	30(,000)
	Globecast (feeds)	12.550-555V	1TV	3/4 & 2/3	6(,110/670)
	Globecast	12.564V/T13	2+ TV	2/3	30(,000)
	UBI/tests	12.613H/T14L	11+TV	3/4	22(,500)
	UBI/tests	12.640H/T14U	11+TV	3/4	22(,500)
	Globecast 1	12.658V/T7	14TV, 15 radio	2/3	30(,000)
	UBI/tests	12.674H/T15L	11+TV	3/4	22(,500)
	UBI/tests	12.701H/T15U	11+TV	3/4	22(,500)
	WA ABC	12.702V	1 TV, 1 radio	7/8	14(,288)
	WA SBS	12.720V	4TV, 2 radio	5/6	12(,600)
	WA GWN/WIN	12.738V	2TV	7/8	14(,295)
C1/156E	Internet tests	12.288V/T1L	no regular TV	1/2 -?	28(,650) (?)
	Aurora	12.324V/T1U			
	Pay TV	12.365V/T2	11TV, 2 radio	3/4	27(,800)
	Aurora Home	12.407V/T3	5 TV, 13 radio	2/3	30(,000)
	Pay-TV	12.447V/T4	5TV, 4 data	3/4	27(,800)
	Pay TV	12.487V/T5	3+ TV, data	3/4	27(,800)
	Aurora 2	12.527V/T6	7TV, 20 radio	3/4	30(,000)
	Pay-TV	12.567V/T7	10 TV	3/4	27(,800)
	Pay-TV	12.607V/T8	10 TV	3/4	27(,800)
	Pay-TV	12.647V/T9	10 TV	3/4	27(,800)
	Pay-TV	12.692V/T10L	6TV, 27 radio	1/2	28(,650)
	Aurora MUX	12.728V/T10U	4TV, 17 radio	1/2	24(,450)
	Austar	12.305H/T11	6TV, 24 data	3/4	30(,000)
	Pay-TV	12.358H/T12	10 TV	3/4	27(,800)
	Pay-TV	12.398H/T13	10 TV	3/4	27(,800)
	Pay-TV	12.438H/T14	6TV, 3 data	3/4	27(,800)
	Pay-TV	12.478H/T15	10 TV	3/4	27(,800)
	Pay-TV	12.518H/T16	10 TV	3/4	27(,800)
	Pay-TV	12.558H/T17	10 TV	3/4	27(,800)
	Pay TV	12.598H/T18	10 TV	3/4	27(,800)
	Pay-TV	12.638H/T19	10TV, 30 radio	3/4	27(,800)
	Pay TV	12.688H/T20	11TV	3/4	27(,800)
B1/160	7 Central DTV	12.365H	1TV	3/4	5(,100)
	Occ. feeds	12.380H	1 TV - *	3/4	6(,111)
	Occ. feeds	12.384V	1 TV - *	3/4	6(,111)
	Net 7 service	12.397H	1	3/4	7(,200)
	Imparja mx	12.379H	2TV + 8 radio	3/4	5(,424)
	7 digital feeds	12.397H	1TV	3/4	7(,200)
	Feeds to NZ	12.411V	1 TV	3/4	6(,111)
	SBS Mux	12.420H	3+ TV, 2+ radio	5/6	12(,600)
	TVNZ DTH	12.456V	5+TV	3/4	22(,500)
	TVNZ Tests	12.483V	up to 11TV	3/4	22(,500)
	Sky NZ	12.519/546V	7TV/7TV	3/4	22(,500)
	Sky NZ	12.581/608V	6TV/6TV	3/4	22(,500)
	Sky NZ	12.644/671V	9TV	3/4	22(,500)
	ABC western	12.610H	5TV	7/8	14(,3288)
	Sky NZ	12.707/734V	8+TV	3/4	22(,500)
P8/166E	ABS-CBN	12.575H	4+TV, 4+ radio	2/3	13(,845)
	NZ tests	12.642V	up to 8 TV	3/4	28(,060)
	JEDI/TVB	12.686H	11+ TV	3/4	28(,126)
	ABC A-P	4180/970H	2TV, 2 radio	3/4	27(,500)
	Disney Pac	4140/1010H	typ 6 TV	5/6	28(,125)
	Taiwanese MUX	4080/1070H	12+ TV	5/6	30(,000)
	NHK Joho	4060/1090H	7TV, 1 radio	3/4	26(,470)
	FOX Mux	4040/1110V	up to 5TV	7/8	26(,470)
	NET +	4121/1029V	1 TV	3/4	4(,774)
	ESPN USA	4020/1130H	8+TV, data	3/4	26(,470)
	Discovery	3980/1170H	8 typ.	3/4	27(,690)
	CalBqt/Pas8	3940/1210H	up to 3+ FTA	7/8	27(,690)
	CNBC HK	3900/1250H	up to 7TV	3/4	27(,500)
	FilipinoMUX	3880/1270V	up to 8TV+radio	5/6	28(,694)
	TaiwanBqt	3860/1290H	12TV + 30 r	5/6	28(,000)
	CCTV Mux	3829/1321H	up to 4+ 1 radio	3/4	13(,240)
	TVBS-N	3836/1314V	1FTA, 4+ CA	3/4	17(,500)
	EMTV PNG	3808/1342V	1 + 2 radio	3/4	5(,632)
	CNNI	3780/1370H	3, up to 5 TV	3/4	25(,000)
	Discovery Asia	3764/1386V	Up to 6 TV	3/4	19(,850)
	MTV	3740/1410H	8	2/3	27(,500)
P2/169E	WA Mux Pv	12.281V	3+ TV, radio	2/3	27(,500)
	Arlang TV	12.401V	1TV	3/4	4(,400)
	ABS-CBN	12.575H	4TV, 2 radio	3/4	13(,845)
	Test mux	12.715H	6+ TV	2/3	30(,000)
	TARBS feeds	4090V/1060V	9TV + radio	3/4	21(,000)
	BBC SCPC	3986/1164H	1TV	1/2	5(,700)

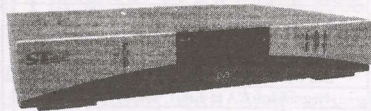
Receivers and Errata

FTA ; Singapore 23hrs, Brunei 1 hr; Brunei V1200 was on 4048V; New Caledonia, parts of Australia FTA SCPC; Australia, New Caledonia, some Eng. Irdeto 2; 4060V HDTV CA; also try 4020V PowerVu; some FTA (Ch. 1 & 3) CA & FTA NTSC: Japan, Taiwan (ApStar 6: also 4180V same #s; some analogue also) also try 3660/3540V, Sr 30,000, 3/4; some FTA North beam; also try 3875R, 12.475, 1/2 Strong NZ & Australia; may now be 1/2, 6.525 Aust East beam - 3 FTA + 14 CA WA only? Skew path, intended Asia differs from 12.407 C1; tune ch FTA; NZ+Au T11/lower testing late May 2005 NZ + Au, FTA Mcript CA occ feeds, NZ + Au; recently 12.553V AMTV, Healing only FTA svcs now here High performance beam; not NZ; new PIDS 10-05 High performance beam; not NZ; new PIDS 10-05 NZ + Au (Mcript, PowVu capable) High performance beam; not NZ; new PIDS 10-05 High performance beam; not NZ; new PIDS 10-05 ABC WA tests, FTA SBS, radio tests WA FTA Irdeto V2 CA, tests (GWN, WIN) Now on Australia + NZ beam; SCPCs not currently in use Tests; SBS-NDS CA, others FTA when here NZ (90cm) + Australia (Only C1 svc left on NZ) Australia NA only (leakage to Norfolk, New Cal) Australia NA only (leakage); 9-Net x 3 widescreen Arrow radio (still here), tone FTA Pay-per-view movies; CA Pay-per-view movies; CA Pay-per-view movies; CA ABC for Foxtel/Austar; previously 12.288V changes September 2005 Austar inter; Expo FTA NDS CA + Mcript, CA CA, subscriptions available Australia, Norfolk Sky News active; 'Help x 2' FTA CA, subscriptions avail Au, Nrlfk, TVSN FTA CA, subscriptions available Australia, Norfolk "Home"CA, subscription available Australia, Nrlfk CA, subscriptions available Australia, Norfolk CA, subscription available Australia, Norfolk CA, subscription available Australia, Norfolk Central beam; Freq change 08-05 * - plus 12.451H, 12.460H * - plus 12.293V, 12.402V, 12.411V Full schedule less commercials - links; may be CA PIDs vary; also try 12.360, 12.370 occ. digital feeds; typ fta Often NTSC; USA-Australia-NZ Also 12.437H, 12.456H same params, HDTV+WS FTA 7 channels (TVNZ x 4); +Maori DW, CCTV9 Testing late June; 16:9 added late July NDS CA, subscription available NZ NDS CA, subscription available NZ NDS CA, subscription available NZ also see 12.610, 626, 643, 670, 688, & 706H NDS CA, subscriptions available NZ CA Testing new NZ Ku beam June 2002-Irdeto-2 CA Dateline west; also east PAS2, 3901V PowVu CA Tests - CA service announced PowVu CA & FTA; subscription available was PAS-2, previously 3992V; feeds FTA NET25 + FTA; new PIDS April '03; reload PowVu CA; ch 11 DCP-CCP bootloader; audio FTA PowVu/CA (some audio FTA) PowVu CA & FTA (EWIN + CBS + TEN +) NDS CA (6 channels); one test card occ FTA Myx FTA V1960, A1920 + radio FTA Mixed FTA & CA; STC gone (CA) PowVu FTA, replaces PAS-2 svc CCTV cross pole; new SR 04-06 PowVu CA PowerVu; some audio FTA PowerVu; Asian MUX; new parameters Nov '03 # 8 MTV China FTA V289, A290; rest CA PowVu CA, WIN, ABC NT, SBS; status unknown Test - may not stay permanently Temp FTA; subs Aust 011-800-2270-0722 initially with 6 NTSC colour bars Occ FTA (Chile +); BIG power reduction Nov 03

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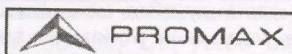
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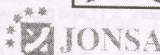
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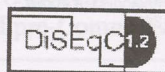
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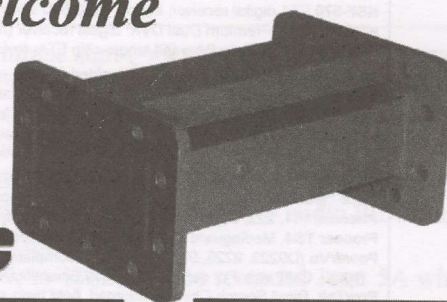
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Bird	Service	RF/IF & Polarity	# Program Channels	FEC	Msym
(PAS2/169E)	Adventists.tv	4040/1010H	1	2/3	5(.900)
	Feeds	3868/1182H	1	2/3	6(.620)
	Feeds	3939/1211H	2 (typ NTSC)	2/3	6(.620)/7(.498)
	Cal PowVu	3901/1249H	up to 8	3/4	30(.800)
	HK bouquet	3850/1300H	up to 8	2/3	24(.900)
	Korean Bgt	3771/1379H	1	3/4	6(.510)
AMC23/172E	Various-tests	12.730H	up to 8	3/4	30(.000)
1804/174E	IPSTAR	12.619H	1	2/3	25(.220)
	Tests-NZ beam	12.646H	1	3/4	22(.418)
	RFO Poly	4027/1123R	1TV	3/4	4(.566)
1701/180E	TNTV	11.060&11.514V	9	3/4	30(.000)
	TVRFO	11.136V, 11.174V	6+TV, 3+ radio	3/4	23(.149)
	Canal+Sat	11.610H	16TV, 1 radio	3/4	30(.000)
	PBS	12.648HH	16TV possible	3/4	28(.066)
	TVNZ/BBC	4186/964RHC	1	3/4	5(.632)
	TVNZ	4178/972RHC	1	3/4	5(.632)
	AFRTS DTS	4175/975L	3 TV, 3 radio	2/3	3(.680)
	TVNZ/Aptn	4170/980RHC	1	3/4	5(.632)
	Fiji Sky Pacific	4095/1055LHC	6TV + future radio	3/4	16(.505)
	Fiji Sky Pacific	4055/1095LHC	7TV + future radio	3/4	16(.505)
	TVNZ/feeds	4052/1098RHC	1	3/4	5(.632)
	TVNZ feeds	4044/1106R	1	3/4	5(.632)
	NBC to 7 Oz	3960/1190R	1	7/8	6(.447)
	TBN Mux	3927/1223R	4TV	2/3	11(.394)
	WorldNet	3886/1264R	1TV, 37 radio	3/4	25(.000)
	Ioarana	3772/1378L	1	3/4	4(.566)
	NASA TV	3854/1296R	1 TV	3/4	2(.000)
	TVNZ	3846/1304R	1	3/4	5(.632)
	NBA (Barker) Ch	3803/1347R	1	3/4	6(.111)
	USA feeds	3749/1401R	4?	?	26(.400)
NSS-5/177W	Pacific IP Data	3763/1387R	none-data	3/4	27.5
	BYU-TV	4185/965R	1TV, 20+ audio	1/2	6(.525)
	IPSTAR Tests	12.691V	8 TV	5/6	17(.600)

Receivers and Errata

New December 2003; 24/7 "Hope Chs."
FTA (occ sport); also try 3863, Sr6.100
FTA-typ NTSC-occ sport, live Shuttle
PowVu CA + FTA (includes BBC-W 05-05)
was 4148Vt; some FTA
Korean MUX, reload 12-04; new Sr
Testing on NZ/East Australia beam
Tests, late May start; also 12.646H
Testing possible data links; June 2003
SE spot beam; was 4027LHC
east spot; 10TV + r each, vertical pol.
FTA 11.136 Tahitian beam, 11.174 west beam; 12/04
1+ FTA, MediaGd "2"; + 10.975 weaker
Testing Fiji region pay-TV (MDS) package (Oct '04)
DMV/NTL early vers. occ feeds, typ ca
DMV/NTL early vers. occ feeds, typ ca
DTS Direct to Sailors; audio previously FTA - gone
DMV/NTL early vers. occ feeds, typically ca
Nagravision CA (> Feb 1, 2005) New PIDS
All now (including Fiji 1) CA; 7 Feb, 2005
DMV/NTL early vers. occ feeds, typ ca
SCPC, mixed CA and FTA feeds
CA, Leitch encoded
January 2006-now 4 channels, new Sr
New PIDS Dec 03 very strong NZ, Pacific
FTA SCPC; East Hemi Beam-Tahiti
24/7 live NASA - West Hemi bm (can be difficult!)
SCPC, mixed CA & FTA, feeds
NBA feeds - probably CA - new Nov 2003
16-QAM (not MPEG-2 compatible)
Data only but useful for dish alignment
Global beam - requires sizeable dish
CA Tests - Taiwan TV: data coming?? (NZ beam)

MPEG-2 DVB Receivers: (Data here believed accurate; we assume no responsibility for correctness!)

AV-COMM R3100. FTA, excellent sensitivity (review SF May 1998); new version Sept. '99. AV-COMM P/L, 61-2-9939-4377.

AV-COMM Tiny Tot. FTA, 12Vdc operated, palm sized, low power consumption; review SF#120. Contact # above.

Coship 3188C. Review SF#107. Blind search FTA rcvr; works well. Phoenix Technology Group (www.phoenixsatellite.com.au) (Irdeto 2 as well as FTA versions)

Divitone: "Left-handed" review SF#115; does "code key" entry. Available <http://www.satmax.ws>

eMTECH eM-100B (FTA), eM-200B (FTA + Clx2), eM210B (FTA + 2xCl + positioner); KanSat 61-7-5484 6246 (review SF#89)

Fortec Star Lifetime. Two versions, both blind search, code-key programmable, one X 2 Cl. Review SF#119. www.aDigitalLife.com

Humax ICRI 5400 (Z). Embedded Irdeto + 2 CAM slots; initial units had NTSC glitch, now fixed. Widely available; new software avail 04-04, SF#76.

Humax IRCI 5410 (Z). Adaptable version capable of holding multi-CA systems (SF#98, 99). Widely available; original importer Sciteq (www.sciteq.com.au).

Hyundai-TV/COM. HSS100B/G (Pacific), HSS-100C (China) FTA. Different software versions; 2.26/2.27 good performers, 3.11 and those with Nokia tuners also good; later 5.0 not good.

Hyundai HSS700. FTA, PowerVu, SCPC/MCPC. Review SF March 1999. Kristal Electronics, 61-7-4788-8902.

Hyundai HSS800CI. FTA, Irdeto (with CAM) + other CA systems, PowerVu, NTSC. Kristal Electronics, above; review SF#63.

INNOVIA IDS3088. Review SF#111. Blind search FTA receiver. High quality IRD; available Phoenix TechnologyGroup, and Satmax (<http://www.satmax.ws>).

ID Digital CI-24 Sensor. New August 2003; new lower noise tuner, extra sensitivity; CI Interface slot Irdeto 1 & 2; review SF#109. Sciteq 61-8-9409-6677.

KSF-570 FTA digital receiver, import; KSC-570 adds CI x 2 (no test or user results available). Asoft Limited, 64-4-234-1096

KSC-N550H2 'Premium Dual DVR' digital receiver (no test or user results available). Asoft Limited, 64 4 234 1096

MediaStar D7.5. New (May 00) single chip FTA; review June 00 SF. MediaStar Comm. Int. 61-2-9618-5777

MediaStar D10. FTA and Irdeto embedded CA. VG receiver; see review SF#96, August 2002. Contacts immediately above.

MultiChoice (UEC) 660. Essentially same as Australian 660, not grey market contrary to reports. Sciteq tel 61-8-9306-3738

Nokia "d-box" (V1.7X). European, FTA, may only be German language, capable of Dr. Overflow software. SF#95, p. 14.

Nokia 9200/9500. When equipped with proper software, does Aurora, originally did pay-TV services provided software has been "patched" with "Sandra" or similar program. See SF#95, p. 14, SF#96 p. 15. SatWorld 61-3-9773-9270 (www.satworld.com.au)

Pace DGT400/DVR500. Originally Galaxy (Now Foxtel+Austar). Irdeto, some FTA with difficulty (Foxtel Australia 1300-360818). UECs replaced.

Pace "Worldbox" (DSR-620 in NZ). Non-DVB compliant NDS CA including Sky NZ, no FTA; similar "Zenith" version (see SF#115, p. 15).

Phoenix 111, 222, 333 models (no longer produced): Service, backup - Phoenix Technology Group 61 3 9553 3399; www.phoenixsatellite.com.au

Pioneer TS4. Mediaguard CA (no FTA), embedded Msym, FEC, only for Canal+Satellite (AntenneCal ++687-43.81.56)

PowerVu (D9223, 9225, 9234). Non-DVB compliant MPEG-2 unless loaded with software through ESPN Boot Loader (see below). Primarily sold for proprietary CA (NHK, CMT etc). For service only - call Scientific Atlanta 61-2-9452-3388. For revision model D9850, see Scientific Atlanta (below).

PowTek. Blind Search Chinese sourced, field tests rate it highly. Source jason@aDigitalLife.com

Prosat 2102S. FTA SCPC/MCPC, NTSC/PAL, SCART + RCA. Sciteq 61-8-9306-3738.

SatCruiser DSR-101. FTA SCPC/MCPC, PowVu, NTSC/PAL. (Skyvision Australia 61-3-9888-7491, Telsat 64-6-356-2749); no longer available.)

SatCruiser DSR-201P. FTA SCPC/MCPC, PowVu, NTSC/PAL, analogue, positioner - (Skyvision - see above); no longer available.

SATWORK ST3618. Blind search FTA receiver. Fast search, problems, especially in "memory-filing" system; review SF#111. Available DMSI at tim@dmsiusa.com

SATWORK ST3688. Blind search, 3000+ ch memory, multi-format RF modulator; improved version 3618. Review SF#113; available DMSI (above).

Scientific Atlanta D9223, D9234, D9225; Orig. PowerVu, superseded Dec 2003 by D9850. Commercial receiver, available TVO 61-2-9281-4481, John Martin

Strong Technologies SRT2620. SCPC, MCPC FTA, exc sensitivity, ease use, programming. Review SF#91 (ph. below).

Strong SRT 4600. SCPC, MCPC, PowerVu; exc graphics, ease of use, review SF#64. Strong Technologies 61-3-8795-7990.

Strong 4800. SCPC, MCPC, embedded Irdeto+ CAM slots, does code key with additional software, Aurora. Strong Technologies 61-3-8795-7990.

Strong 4800 II. SCPC, MCPC CAM slots x 2 for Aurora +, Zee, Canal +, code key with additional software. Strong Technologies (above); review SF#103.

Strong 4890. SCPC, MCPC, 30Gb PVR, 2 CAM slots, DiSEqC 1.0, 1.2 (review SF#84), does code key with additional software; Strong Technologies, # above.

UEC Atlas/Titan (1000). New July 2003, replacing DGT400 for Austar. No SCART, L-band loop; also available Rural Electronics 61-2-6361 3636.

UEC642. Designed for Aurora (Irdeto), replaced by Optus; w/new software, C-band FTA; faulty P/S. Norsat 61-8-9451-8300.

UEC660. Upgraded UEC642, used by Sky Racing Aust., Foxtel, limited FTA. (Nationwide - 61-7-3252-2947); P/S problems.

UEC700/720. Single chip Irdeto built-in design for Foxtel; unfriendly for FTA. Power supply problems, seldom sold to consumers; propensity to fall off back of trucks.

Voyager. Two models (08-05); one FTA auto scan, 8000 ch memory; one multi-CA format CAM. Satlinknz.co.nz

Winersat DigiBox 200. C + Ku basic receiver but includes Teletext for NZ TVOne, 2 VBI. Satlink NZ, fax 64-9-814-9447; long term teletext problems (loses TT).

"X" Digital. When modified with "aftermarket" Internet softwre, does Aurora and other V-1 CA without card; review SF#119. Strong Technologies (61-3-8795-7990).

Accessories:

Aurora smart cards. MCRYPT (Irdeto V2) cards now available (Jan 2005), Sciteq 61-8-9409-6677.

PowerVu Software Upgrade: PAS-8, 4020/1130Hz, Sr 26.470, 3/4; pgm ch 11 and follow instructions (do not leave early!)

PowerVu (Pacific) repair service: Cable & Sat Svcs, Darius West, 61-2-9792-1421 (Email darius@cases.net.au)

WITH THE OBSERVERS

AT PRESS DEADLINE

CubaVision is new on As2, 4000Hz, 28.125, 3/4 24 x 7 or when they are broadcasting; V318, A252. Message to Craig Sutton from broadcaster suggests this will be permanent and is available for cable system use, FTA. 7 Central has replaced SC10, B1, 12.365H; FTA, V1280, A1281.

Launch schedules: May 26th, Ariane 5, Thaicom 5 to replace 2/3 at 78.5E; 14 Ku and 24 C. June 6th, Proton, KazSat 1 to 96.5E, 12 Ku; "June 2006" Optus D1, to replace B1 at 160E (Editor's note: June is very unlikely.)

AMC23/172E: "Not good news - while at Expo 2006 Atlanta, discussions with AMC reveal this new satellite is somehow going to end up being a part of Intelsat fleet and therefore a new competitive, cheaper-than-Intelsat bird is unlikely to materialise. Nuts!" (C.Clarke, NZ) "Test signals continue on 12.730V, very strong throughout NZ (C.Sutton, NZ)

AsiaSat 3S/105E: "Pakistani MUX 4111V has new SR; 9.333." (Reynolds)

Express 2/103E: "3924RHC, Sr 4.886, 3/4 'Pervity Kanal' logged here on a blindscan; V529, A829, PCR1135, using 4m mesh dish." (David, Newcastle, NSW) "Many new radio channels here, 3609R, 3615R, 3627R, 3632R." (Ross)

Optus B3/152E: "During B1's problems, Imparja's normal B1 service was moved to B3 (12.269V, 5.423, 3/4; PIDs as normal, hidden). The 'Sport 927' radio channel, rebroadcast on low power FM throughout NSW, became FTA immediately after the Aurora card audit software went into effect; they remain on 12.407V, 30.000, 2/3, A256 mono. Also here, 'QTAB' (also on Optus C1 Aurora) will still decode with an Optus V1 card; A288." (IF, Qld) "TVRi, Romania TV International, 12.525V, 30.000, 2/3 (Globecast) has teletext which may have been there all along; V2365, A2325, Txt2330. UEC will not indicate teletext but Nokia DVB2000 displays around 260 pages. It is pathetic that Optus has stopped some Aurora subscribers from using their teletext (such as the weather for my area through GWN)." (NSW) "On T5/12.525V, ORTi, Russian Channel 1, went CA late in April after being FTA for a month; SUN TV subscription TV was FTA April 9 to 22 as a promotion. 'UCB Radio' (A2321) has begun here as well; same as UCB-Vision FM, C1 12.407V." (George) "Vision Asia 3 appears FTA 12.657V, 30.000, 2/3 with graphic; V1360, A1320." (IF, Qld) "EWTN did not last long (12.563H, 30.000, 2/3), being more gone then there during March, early April. Channel label and PIDs remain. RFI (France) is now here, FTA." (Gregory, NSW)

Optus C1/156E: "Tlupper/12.312V, 7.474, 2/3: No loading table, PID search with DVB2000 finds nothing - mystery." (IF, Qld) "T13/12.398H, 27.800, 3/4 continues to list several pre-Commonwealth Games services (eg. -FS Com



Fabled 'Saginaw' dish drives, 9 to 36" in length, remain available if pricey. Contact Mike Kohl at www.global-cm.net for details.

Games 3' and the minus sign (-) was added when games were moved to T7/12.567V, replacing pay-per-view movies for Games duration. On T15/12.578H, 27.800, 3/4 a new TV channel labelled 'Sports Selector' with the EPG 'Nine Sports channels of your choice.' There is a single (video) PID (1031) and possibly a split screen with 9 images, 9 audio PIDs and 2 data PIDs." (AI, Victoria)

SoapBox: Jcsat 9, to 132E, will be renamed Jcsat 5A when testing is completed and it becomes a part of the regular Japan-coverage fleet sometime early in June. Footprints for C-band loop downward through NT and tip of Qld at 36 dBw; possibly as high as 28 dBw in Brisbane, Alice Springs." (MF, NSW) "Al Jazeera (English) is targeting early June for a start date, hoping to be functional in time for the 2006 World Cup Soccer (begins June 8). The service has been denied service rights inside the USA, branded a propaganda arm of militants

WITH THE OBSERVERS: Reports of new programmers, changes in established programming sources are encouraged from readers throughout the Pacific and Asian regions. Information shared here is an important tool in our ever expanding satellite TV universe. **Photos of yourself, your equipment** or off-air photos taken from your TV screen are welcomed. TV screen photos: If PAL or SECAM, set camera to f3.5-f5 at 1/15th second with ASA 100 film; for NTSC, change shutter speed to 1/30th. Use no flash, set camera on tripod or hold steady. Alternately submit any VHS speed, format reception directly to SatFACTS and we will photograph for you. Deadline for June 15th issue: June 4th by mail or 5PM NZT June 5th if by fax to 64-9-406-1083 or Email skyking@clear.net.nz.

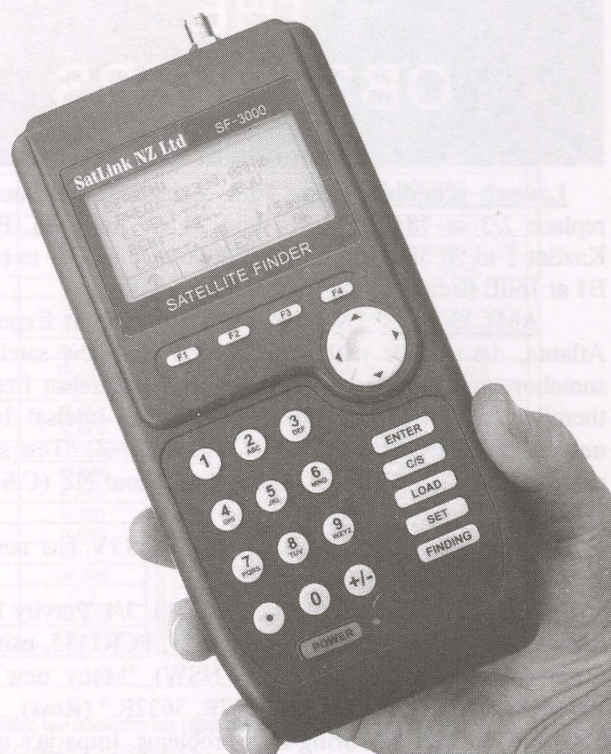
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UBI's Attack on Piracy

" Late in April UBI headman Mike Boulos launched a new 7 minute looped message (B3's T11/12.425H, Sr 22.500, 3/4) featuring the man himself news-reader style with a computer generated graphic behind him. He begins by thanking viewers for their overwhelming response to an earlier message advising that UBI is changing out the STBs for the purpose of halting the apparent widescale piracy of the service. He also offered an olive branch to those presently viewing UBI with piracy-origin boxes - an amnesty programme of sorts: Turn in your existing box, pay \$149.95 which he characterises as "50% of full price." He also warned viewers, "Do not believe illegal installers that you will continue to receive UBI after the box changeout," mentioning the possibility that illegal installers "may be in jail for what they have done to you and us." He goes on to explain the decoder changeout is a "massive task, suburb by suburb, city by city" and that legitimate subscribers will have a telephone scheduled appointment for their box changeout. He expects the changeout to be complete by the end of May, a statement that 'works' only if his actual subscriber base is far smaller than he has been claiming in recent times (there being only so many installers available, and a maximum number each can do in one day). A check on May 2 of UBI's 6 MCPCs revealed that at that time only the original (older) MDS CA system was functional - no sign of a parallel Irdeto 2 CA stream. (See editor note below) Of course before the first new Irdeto 2 STB is swapped out, the required stream must be in place as well. Doubtless that will correct before you read these words. The May 2nd survey found:

T11lower/12.425H, 22.500, 3/4: Signal remains inverted, MDS, 2 FTA channels (Cyprus Sat and Ch 72 - Boulos message)

T11upper/12.452H, 22.500, 3/4 - This MCPC as of May 2nd remains outside of the UBI network, 13 CA TV channels load (first is labelled 'UBI'). Its NIT loads, but has an identifier of '1660' which stands for 166.0E, a holdover from the old TARBS PAS-8 days.

T14lower/12.613H, 22.500, 3/4: This was (past-tense) inverted. The PAT (channel loading table) now functions with the UEC642 STBs but DVB2000 in Nokia requires several passes to load the PAT. TRTi remains FTA here.

T14upper/12.640H, 22.500, 3/4: There were 3 FTAs here, now two (Kurdistan TV and 'SCTV').

T15lower/12.674H, 22.500, 3/4: Still normal (no changes)

T15upper/ 12.701H, 22.500, 3/4: Still normal (no changes)"

(Editor note: That the DVB2000 does not indicate Mcrypt [Irdeto] presence does not mean Irdeto 2, Version 5 is not actually in the stream. As an anti-piracy measure, UBI may have disabled the data bit(s) which would normally identify that Irdeto is present. One observer found during March UBI running T11/12.452H was running all [test] channels CA but no CAT (conditional access table) could be located with the DVB2000 software. Version 5 apparently has this capability.)

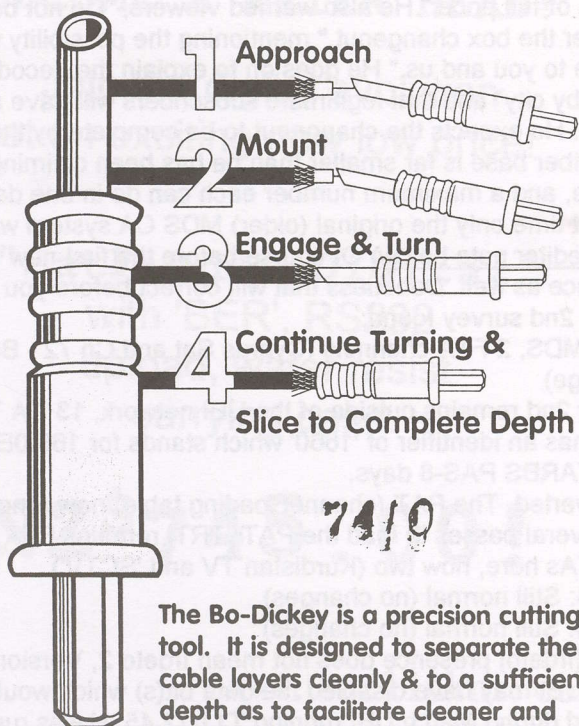
which the US has declared war upon. However, Al Jazeera Arabic is, has been, available within USA through optional DISH network subscription for several years. Apparently the Bush administration is only concerned if Al Jazeera speaks the American native language!" (Ronald T, Los Angeles) "Unless you are a teen-ager with an IPOD, you may not realise how many sites offer completely legal downloads of popular music. Here are some sites: www.mp3downloading.co, www.AllCoolMusic.com, www.MyMusicInc.com, www.MP3advance.com, www.arrowemail.com/dem. Some of these are truly incredible - www.MyMusic.com, for example, boasts 12 billion song titles and no download fees." (Tim L, California) "If terrestrial DVB-T is the answer, I wonder what the original question was! Our regional Mt Barrow digital transmitters have been running at reduced (less than authorised) power from day one because the site does not have sufficient electrical power to allow them to operate at full power. When I do a terrestrial site install, I find WIN and TDT down 20 dB from other transmitters. So in many areas we are forced to install a pair of terrestrial antennas - one of modest size for the strong signals, one very large for the weak ones, creating masthead and other functional problems. Once again, Tasmania is left out of the loop and solutions engineered in Melbourne or Sydney simply do not work here." (B. Watson, Tasmania) "UBI which inherited the Taiwan design MDS CA system and companion receivers is switching to Version 5, Irdeto 2 cards (and new receivers). The MDS receivers have typically been purchased by and owned by the customer whereas the new I2 receivers will be owned by UBI." (CS,

NZ) (Editor's note: UBI began scrolling a subscriber announcement April 9th advising them, "Do not turn in your existing receiver to anyone that is not an authorised UBI representative.") "Chip maker Qualcomm is promising 2007 delivery of new processor device for 3G fones that will provide average download speeds of 1.3 to 2.4 Mbps and upload rates up to 432 Kbps. They believe this will put handheld fones on a performance par with (today's) fixed (PC based) web access machines and in the process enhance the 'mobile experience'." (Allen Low, Honolulu) (Editor's note: Frankly, even today's much slower 3G television transmissions look surprisingly robust - see note on p. 15) "SelecTV, at \$29.95, the lowest cost 'movies-included' Ku delivered DBS service in Australia, has advised (several New Zealanders) 'We are not at this point interested in taking on subscribers from your country; SKY is too-well established.' In fact, at least in Dunedin and further up towards Nelson, the SelecTV transponders on PAS-8 Ku are very impressive in level." (Timothy, NZ) "Russia's Express AM11 failure, March 29, has been explained as the result of collision of 'space debris' and the satellite. The debris knocked the satellite out of orbit and this started it spinning, never to be heard from again." (Sergi, Moscow) "There are now 35 cable TV channels inside the AsiaSat 4, operated by CCTV under the CDM banner., going to 130 cities serving an estimated 64 million cable subs. Interesting." (Charlie, Taiwan) "EchoStar/DISH has admitted their 12 million card universe change out, to a higher form of Nagravision, has failed to stop hackers. A formal government filing noted, "the new cards have been compromised and there can be no assurance that



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our security measures will be effective in reducing theft of our programming signals." (BL, USA) "As the growth of UK's terrestrial DVB-T service continues, the 70% of homes now have at least one digital functional TV set with Freeview serving 70% and BSkyB most of the remaining 30%. An additional 1.7 million homes are expected to take-up Freeview during 2006." (RG, UK) "AsiaSat 5 construction contract has been signed, it will replace As2 at 100.5E in 2008 although the existing satellite is not scheduled for retirement until 2010." (HJ, HK) "Major increase in over-the-air promotional announcements describing the virtues of DVB-T through Nine Network affiliates. One of interest describes the importance of selecting 'good quality antenna, cable and connectors.' Another describes connection of a HD set-top-box. Ads are a co-operative effort apparently paid-for by LG and a web site (www.lghdtv.com.au) is referenced. And then there is Match Master overloading my FAX machine with promotions for 'screw saddle splitters' and F fitting bulk buys (2,000 and they throw in a 'free crimper'). Unfortunately the crimper is a Hex version which strongly suggests the F fittings are designed as well for Hex. 'Screw Saddle' splitters and Hex connectors? Are these guys still living in the 1990s? First we have Nine-Net advising us to use 'quality parts' and then MM offers to sell us junk that only makes digital installs worse. Their promotion headline is 'May Madness'; indeed. What a strange world." (AI, Victoria) "Dave Letterman Show May 3rd (in Australia) featured Letterman describing dish installers as smelly hulks and he ended piece with a china parrot taped to his right shoulder! I think your 'Television's Pirates' artwork should be modified to add a parrot!" (NS, NSW)

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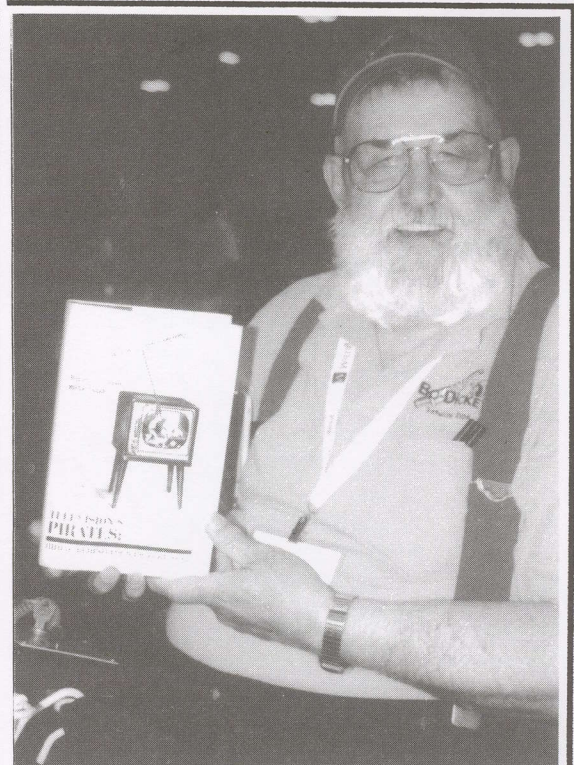
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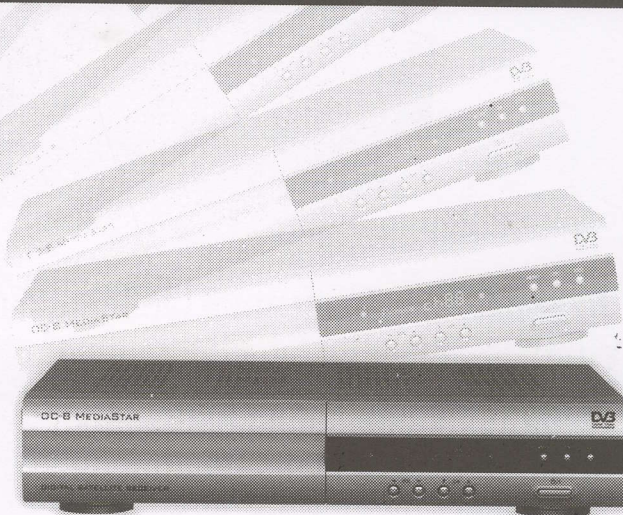
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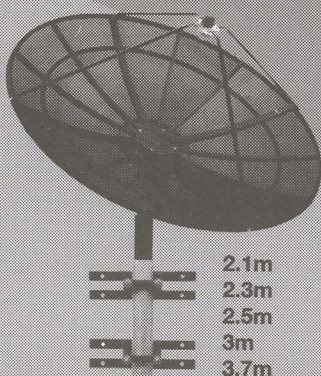
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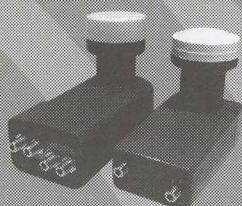


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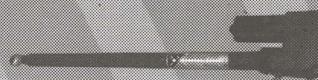


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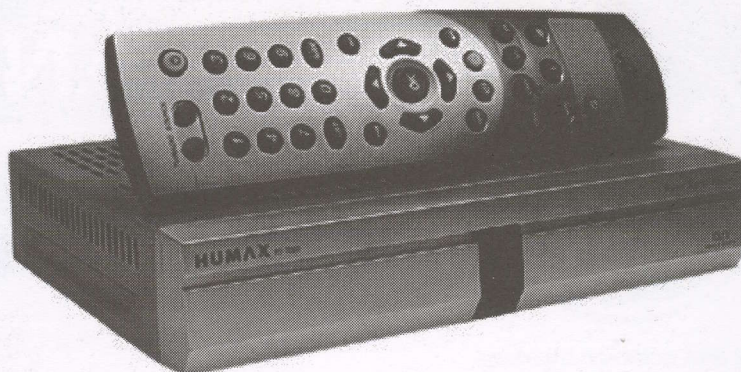
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